CUPPING THERAPY EVIDENCE-BASED RESEARCH

16

CHAPTER CONTENTS

INTRODUCTION

Although cupping therapy has been practised for more than five thousand years – first by various folklore and traditional medicine practitioners (cupping was systematically used by the Ancient Egyptians 3150 BC) and later on by a diversity of contemporary CAM practitioners in different parts of the world – scientific research material has been in short supply, particularly during the early 1990s when the first edition of this book was being prepared. I am glad to report that this situation is now rapidly changing, however, and as far as research into cupping therapy is concerned we are entering an incredibly stimulating period. This chapter brings together such existing cupping research studies as myself and the contributing authors of this edition have managed to assemble, and we hope that this will both provide readers with much-needed and so far missing research material, and also prompt future cupping studies.

Research Study I *Effects of Cupping Therapy on Various Haematological Parameters*

Ilkay Zihni Chirali

INTRODUCTION

For many years I have searched for academic papers that will demonstrate 'scientific proof' of cupping therapy and its effect upon Blood and Body Fluids. At the time of writing the first edition of this book in 1996, no such work had been published, although its efficacy was apparent through the work of many practitioners. In consequence, in 1996 I decided to undertake a limited trial myself (with 6 patients over a 14-day period). This involved patients with various complaints/conditions and analysis by a biochemist with modern laboratory facilities. Once I had raised the necessary funding (through friends and relatives) I undertook this trial with an unbiased 'open mind' approach. The biochemist, Metin Erduran, enquired, 'what kind of changes do you expect or are looking for?' My reply was quite unscientific: 'I do not know. You have to let me know of any abnormalities, if any, when your results are ready!'

METHODS

Treatment protocol: Cupping therapy
Duration of the trial: 15 days (every other day, except weekends)
Patients: Six (5 female and 1 male)
Age group: 26–69 years
Place: North Cyprus
Date: First test 3 January 2004; final test 16 January 2004
Biochemist: Mr Metin Erduran (Biochemist specialist), Erduran Laboratory Girne, North Cyprus

Inclusion Criteria

1. To have received no acupuncture or cupping treatment within the last 6 months
2. If on medication, this should be 'stable' and patients were to continue taking the medication as normal.

Treatment Protocol

Cupping therapy was given every other day. Blood analysis from specimens was taken on three occasions: before the cupping treatment commenced, after 7 days (halfway through the treatment) and finally on the 15th day of the trial following the last cupping treatment. Because of limited funds and my timescale on the island where the research was done (North Cyprus), I could not embark on a trial that would last many months and involve large numbers of people. I therefore decided to commence and complete the trial within a 2-week period, involving only six patients with various disorders. Some of the patients were referred to me by the biochemist with existing (known to him) pathological conditions; some were relatives or friends complaining of various ailments.

At the end of each full blood analysis, 22 different values were recorded, but only 7 of these were monitored as the rest were considered irrelevant to our trial or did not show any changes at all. The seven values were: uric acid, erythrocyte sedimentation rate (ESR), pH, rheumatoid factor (RF), white blood count (WBC), red blood count (RBC) and haemoglobin (Hgb).

RESULTS AND DISCUSSION

Table 16-1 details the blood test results for these six patients before, during and at the end of cupping. For almost all the patients involved in this trial, there were small fluctuations in the WBC, RBC, uric acid, RF, pH and Hgb values. There was, however, in almost every case, one major change: a reduction in the ESR levels, which was by far the most significant outcome of this trial. The biochemist, Metin Erduran (with 15 years of experience) commented he had 'never witnessed such a drastic reduction in

TABLE 16-1 Blood Screening Test Results Before, During and at the End of Cupping Therapy

Name	Test	Normal Values	Pre-Treatment	7 days	14 days	–% Results
O.G.	Uric acid	2.5–6.00	2.8 mg/dL	2.8 mg/dL		
42 yrs old	ESR 1 h	4.00–11.00	11 mm/h	8 mm/h		–37
Female	ESR 2 h	6.00–20.00	28 mm/h	16 mm/h		–75
	WBC	4.5–10.5	7.8	8.5		+8.2
	RBC	4.00–5.550	5.11	5.35		+4.5
	Hgb	12.0–16.0	11.2	11.2		
	RF (latex)	<8 U/L	Negative	Negative		
	pH	Acid	7.5	7.4		
M.B.	Uric acid	2.5–7.00	4.3 mg/dL	4.7 mg/dL	4.7 mg/dL	
54 yrs old	ESR 1 h	4.00–11.00	8 mm/h	4 mm/h	5 mm/h	–60
Male	ESR 2 h	6.00–20.00	22 mm/h	10 mm/h	11 mm/h	–100
	WBC	4.5–10.5	6.4	?	5	
	RBC	4.00–5.550	5.63	?	5.69	
	Hgb	12.0–16.0	14.3	15.3	14.6	
	RF (latex)	<8 U/L	128 U/L	128 U/L	128 U/L	
	pH	Acid	7.4	7.4	7.5	
P.Y.	Uric acid	2.5–6.00	4.5 mg/dL	4.4 mg/dL	3.9 mg/dL	–15
69 yrs old	ESR 1 h	4.00–11.00	22 mm/h	11 mm/h	11 mm/h	–100
Female	ESR 2 h	6.00–20.00	45 mm/h	24 mm/h	21 mm/h	–114
	WBC	4.5–10.5	4.3	3.8	3.7	–16
	RBC	4.00–5.550	4.33	4.17	3.97	
	Hgb	12.0–16.0	13.8	12.9	12.1	–14
	RF (latex)	<8 U/L	Negative	Negative	Negative	
	pH	Acid	7.45	7.5	7.5	
C.Y.	Uric acid	2.5–6.00	6 mg/dL	5.9 mg/dL	5.9 mg/dL	
59 yrs old	ESR 1 h	4.00–11.00	16 mm/h	8 mm/h	8 mm/h	–100
Female	ESR 2 h	6.00–20.00	44 mm/h	19 mm/h	16 mm/h	–175
	WBC	4.5–10.5	6.5	6.5	6.6	
	RBC	4.00–5.550	5.95	5.95	5.82	
	Hgb	12.0–16.0	11.5	11.4	10.8	
	RF (latex)	<8 U/L	Negative	Negative	Negative	
	pH	Acid	7.45	7.5	7.5	
A.Y.	Uric acid	2.5–6.00	3 mg/dL	3 mg/dL	3 mg/dL	
56 yrs old	ESR 1 h	4.00–11.00	15 mm/h	14 mm/h	13 mm/h	–15
Female	ESR 2 h	6.00–20.00	38 mm/h	31 mm/h	28 mm/h	–35
	WBC	4.5–10.5	6.5	7.3	5.8	
	RBC	4.00–5.550	5.39	5.6	5.75	
	Hgb	12.0–16.0	11.2	11.4	11.2	
	RF (latex)	<8 U/L	Negative	Negative	Negative	
	pH	Acid	7.4	7.5	7.45	
S.A.	Uric acid	2.50–6.00	4.2 mg/dL	4.2 mg/dL	4 mg/dL	
26 yrs old	ESR 1 h	4.00–11.00	16 mm/h	16 mm/h	14 mm/h	–14
Female*	ESR 2 h	6.00–20.00	33 mm/h	33 mm/h	19 mm/h	–73
	WBC	4.5–10.5	5.1	5.1	3.7	–37
	RBC	4.00–5.550	4.95	4.95	4.83	
	Hgb	12.0–16.0	11	11	10.9	
	RF (latex)	<8 U/L	Negative	Negative	Negative	
	pH	Acid	7.4	7.4	7.4	

ESR, erythrocyte sedimentation rate; Hgb, haemoglobin; RBC, red blood count; RF, rheumatoid factor; WBC, white blood count.
* This patient started treatment a week late, hence the pre-treatment and 7-day values are identical.

such a short time, even with patients on strong medications'. During this trial, the highest drop in ESR level recorded was 64%; the lowest drop recorded was 15%.

What is the Erythrocyte Sedimentation Rate?

The ESR blood test is an easy, inexpensive, non-specific test that has been used for many years to help diagnose conditions associated with acute and chronic inflammations, including infection, cancer and autoimmune disease. ESR is said to be non-specific because increases do not tell the doctor exactly where the inflammation is in your body or what is causing it; therefore it is often used in conjunction with other tests. The ESR test is helpful in diagnosing two specific inflammatory diseases: temporal

arteritis and polymyalgia rheumatica, where a high ESR is one of the main test results used to confirm the diagnosis. It is also used to monitor disease activity and response to therapy in both these diseases. A moderately elevated ESR occurs with inflammation, but also with anaemia, infection, pregnancy and advanced age. A rising ESR can mean an increase in inflammation or poor response to a therapy, whereas a decreasing ESR can mean a good therapeutic response (source: Lab Tests Online, a public resource on clinical laboratory testing).

According to the above, a drop in the ESR level is indicative of a *positive* response to therapy and the opposite is true when the ESR level is on the increase. Although my study shows a clear picture of *reduction* in ESR levels (see Table 16-1), it is by far too small a trial to claim a major result. I therefore urge my TCM colleagues and doctors, in particular, immunologists, to undertake further investigation on this subject.

CASE STUDIES

CASE 16-1 Female Patient Aged 42 (O.G.)

Complaints/Symptoms. Tennis elbow (pain and restricted movement of the arm for 2 years). No medication.

Pulse. No significant signs.

Tongue. Normal appearance.

Treatment Protocol. Medium to Strong cupping on the local points; Moving cupping on the inside and outside of the arm.

Prognosis. 50% pain reduction with 80% more movement was reported by the patient.

- ESR 1 h: from 11 mm/h to 8 mm/h. Reduction of 37%
- ESR 2 h: from 28 mm/h to 16 mm/h. Reduction of 75%

CASE 16-2 Male Patient Aged 54 (M.B.)

Complaints/Symptoms. He has been suffering from constant upper back and chest (ribs) pain. Ten years ago he was diagnosed with rheumatoid arthritis. He is on maximum pain tablets.

Pulse. Liver pulse, strong and slippery.

Tongue. Purple-red body and slightly swollen.

TCM Diagnosis. Blood and Liver-Qi stagnation.

Treatment Protocol. Medium to Strong cupping on BL-11 and BL-17. Light to Medium cupping on the local chest points.

Prognosis. At the end of the course he noticed considerable pain reduction in the mornings, but still had pain towards the end of the day.

- ESR 1 h: from 8 mm/h to 5 mm/h. Reduction of 60%
- ESR 2 h: from 22 mm/h to 11 mm/h. Reduction of 100%

CASE 16-3 Female Patient Aged 69 (P.Y.)

Complaints/Symptoms. Right knee pain for 4 years, slightly swollen, pain worse when walking.

Pulse. Very fine and thready.

Tongue. Dry with red body.

TCM Diagnosis. Yin Xu (deficiency) with Hot Bi syndrome.

Treatment Protocol. Medium to Strong cupping.

Prognosis. Patient reported 50% reduction of her symptoms.

- ESR 1 h: from 22 mm/h to 11 mm/h. Reduction of 100%
- ESR 2 h: from 45 mm/h to 21 mm/h. Reduction of 114%

CASE 16-4 Female Patient Aged 59 (C.Y.)

Complaints/Symptoms. Gets tired and out of breath on effort. Upper back and shoulder pain for 6 years.

Medical History. She had had an angioplasty due to an arterial blockage.

Medication. Aspirin, atenolol and simvastatin.

Treatment Protocol. Light to Medium cupping on LI-15, GB-21, BL-11, BL-15 and BL-17.

Prognosis. Patient reported 60% reduction in her symptoms.

- ESR 1 h: from 16 mm/h to 8 mm/h. Reduction of 100%
- ESR 2 h: from 44 mm/h to 16 mm/h. Reduction of 175%

CASE 16-5 Female Patient Aged 56 (A.Y.)

Complaints/Symptoms. She has been complaining of left shoulder and left shoulder blade pain for 14 months. She describes the pain as 'moving pain'.

Pulse. Rapid and faint at all levels.

Tongue. Pale, slightly swollen.

TCM Diagnosis. Cold-Damp Bi syndrome

Treatment Protocol. Total of six treatments (every other day). Medium cupping method on LI-14, LI-15, SI-10, SI-11 and on the ashi points.

Treatment Time. Starting from 10 minutes (first visit) and increasing to 20 minutes (last visit).

Prognosis. Patient reported 40% reduction in her symptoms.

- ESR 1 h: from 15 mm/h to 13 mm/h. Reduction of 15%
- ESR 2 h: from 38 mm/h to 28 mm/h. Reduction of 35%

CASE 16-6 Female Patient Aged 26 (S.A.)

Complaints/Symptoms. Pain in the knees, shoulders and neck; also feeling tired most of the time. Symptoms have become worse in the last 6 months.

Medical History. She is diagnosed as anaemic. She has a 'normal periods, but very painful the second day'. Her appetite is good. Her facial appearance is quite pale.

Medication. She has been taking low-dose steroid tablets together with painkillers.

TCM Diagnosis. Severe Blood and Qi Xu leading to exhaustion and pain.

Treatment Protocol. Empty (flash) cupping on the entire back for 5 minutes only.

Prognosis. Patient reported 30% reduction in her symptoms.

- ESR 1 h: from 16 mm/h to 14 mm/h. Reduction of 14%
- ESR 2 h: from 33 mm/h to 19 mm/h. Reduction of 73%

Research Study 2 *The Effects of Cupping Therapy on the Plasma Concentration of Inflammatory Mediators (Unpublished Research Findings)*

Ilkay Zihni Chirali / Roslyn Gibbs / Mark Bovey

(This paper was accepted for a 'poster presentation' at the Society for Acupuncture Research 2007 Conference in Baltimore, MD, USA.)

ABSTRACT

Methods. 14 individuals presenting with a range of chronic musculoskeletal complaints were recruited into the study. Full informed consent was obtained from each subject. A traditional diagnosis (TD) was then performed on each subject by Ilkay Chirali and the cupping treatment strategy was determined accordingly (Light, Medium, Strong, Needle). Each patient then received six cupping treatments at weekly intervals. Prior to the first treatment, and thereafter at weekly intervals, subjects completed a MYMOP (Measure Yourself Medical Outcome Profile) questionnaire in order to assess clinical outcome. Venous blood samples were also obtained before treatment, after three treatments, after six treatments and 6 weeks post treatment. The following analyses were performed on blood samples: full blood count, haemoglobin concentration, erythrocyte sedimentation rate (ESR), serum concentration of fibrinogen, C-reactive protein (CRP), immunoglobulin G (IgG) and ferritin. Serum samples were also analysed for the concentration of inflammatory cytokines (interleukins [IL-1β, IL-6, IL-10] and tumour necrosis factor alpha [TNF-α]). Data obtained were analysed by one-way ANOVA with matched values and Dunnett's Multiple Comparisons Test using Instat2 software.

Results and conclusion. Nine females (aged 23–52 years) and five males (aged 37–62 years) were recruited into the study. One female participant subsequently withdrew from the study at week 3. The TDs performed indicated that patients presented with either Empty, Mixed or Full conditions.

The MYMOP questionnaires, completed by subjects at weekly intervals, indicated that 95% of the subjects reported improvements in their symptoms as a result of treatment and, overall, this improvement was found to be significant.

Complete data sets from blood and serum analysis (before, during and after treatment) were obtained for 11 subjects. The 6-week post-treatment follow-up was 54%. Analysis of data revealed statistically significant increases in the platelet count ($p = 0.0373$) and lymphocyte count ($p = 0.0001$), and decreases in the serum concentration of fibrinogen ($p = 0.0008$) and ferritin ($p = 0.0024$). Ferritin and fibrinogen are inflammatory markers and their reduction during cupping therapy is concomitant with a reduction in the inflammatory status of the patient. Platelets and lymphocytes may increase as a result of local vascular damage from the cupping therapy itself or from a reduction in the adherence of these cells to areas of activated endothelium, associated with inflammation. No changes were measured in the serum concentration of pro-inflammatory cytokines, with the exception of one patient where slight increases above normal levels were seen in TNF-α, IL-6 and IL-10 concentrations. Analysis of the MYMOP questionnaire for this patient suggested that this transient increase in pro-inflammatory cytokine levels correlated with a worsening of symptoms. However, towards the end of the trial the patient reported an improvement in their symptoms, which corresponded to a reduction in plasma cytokine concentration. Interestingly no significant change in the ESR was observed in these subjects. However, only three subjects presented with an elevated ESR before treatment, and these did show a reduction during the course of treatment.

Although the precise mechanism by which cupping therapy exerts its therapeutic effects cannot be determined from this study, the results indicate that cupping therapy is associated with significant changes in the levels of inflammatory cells and soluble markers, which suggests that this treatment can influence the inflammatory status of the patient leading to improved clinical outcome and that this effect therefore warrants further investigation (Fig. 16-1, Tables 16.2 and 16.3).

INTRODUCTION

Cupping is a therapeutic technique employed by many acupuncturists to treat Full, Mixed or Deficiency conditions. Despite its documented effectiveness, however, little is known from a Western scientific standpoint about the mechanisms by which cupping therapy yields its effects. In 2005, Ilkay Chirali published the results of a small trial conducted on 6 patients with musculoskeletal complaints. In this study, patients were treated every 2 days over a 2-week period and blood samples were taken and analysed before, during and after the treatment period. Analysis of the samples revealed a significant

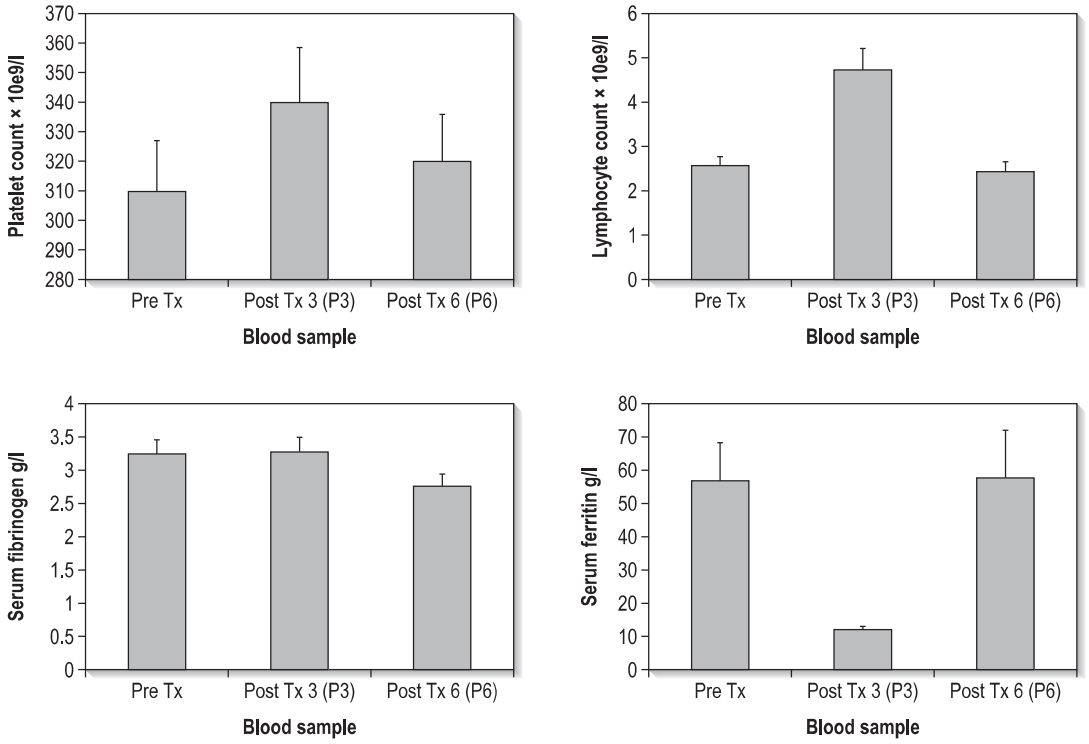


FIGURE 16-1 Changes in the platelet count ($p < 0.05$), lymphocyte count ($p = 0.05$) serum concentration of fibrinogen ($p < 0.001$) and ferritin ($p < 0.001$).

TABLE 16-2 MYMOP Results on Inflammatory Status of 14 Patients

	Gender	Age	Complaint and Symptoms	Duration	TCM Diagnosis	Treatment	Medication	MYMOP
Pt 1	FM	26	L shoulder and neck pains + burning sensation	5 years	Bi syndrome Qi + Yin Xu	Light–Med cupping	Codeine Stopped medication	Symptom 1: 4-3-3-2-2-1 Symptom 2: 2-2-2-2-1 Activity: 4-4-2-2-2 Wellbeing: 2-2-2-2-2
Pt 2	FM	38	Lower-back pain + feeling hot	8 months	K-Qi + Yin Xu	Med–Light cupping	None	Symptom 1: 4-4-4-3-3-2 Symptom 2: ---------- Activity: 6-6-6-6-6-6-6 Wellbeing: 3-2-5-5-5-3
Pt 3	FM	48	L hip pain + burning sensation	5 years+	Blood Xu K-Yang Xu Blood stasis	Light–Med cupping	Voltarol	Symptom 1: 3-3-3-5-3-1 Symptom 2: 5-4-4-4-3-3 Activity: 5-5-4-5-4-3 Wellbeing: 3-2-3-4-3-3
Pt 4	FM	49	R shoulder pain, + R sciatica pain	5 years	D-Heat Bi	Needle cupping Med cupping	Nurofen	Symptom 1: 4-4-4-3-2-1 Symptom 2: 4-3-5-2-2-1 Activity: 3-3-4-3-2-1 Wellbeing: 3-2-3-3-3-3
Pt 5	M	56	Achilles tendon pain + R toe swelling with pain	8 months	Bi syndrome	Needle cupping Moving cupping	None	Symptom 1: 5-5-5-3-4-4 Symptom 2: 5-6-5-4-4-3 Activity: 5-5-5-4-4-4 Wellbeing: 2-2-2-2-2-2
Pt 6	FM	52	Neck and shoulder pain	30 years	Yin Xu + Bi syndrome	Medium cupping	Ramipril + Zoton	Symptom 1: 5-3-3-1-2-1 Symptom 2: 5-3-3-1-1-1 Activity: 4-5-5-1-1-1 Wellbeing: 1-1-1-1-1-1
Pt 7	FM	51	R foot pain and stiffness	8-9 months	Liv-Qi stagnation + Yin Xu	Needle cupping Med cupping	HRT + Ramipril	Symptom 1: 2-2-2-3-2-1 Symptom 2: 3-1-3-3-2-2 Activity: 2-2-3-2-1-1 Wellbeing: 3-2-4-4-2-1
Pt 8	M	39	Poor balance when walking + lower back stiffness and pain	3 years	D-Heat + K-Qi Xu	Med cupping + Moving cupping	None	Symptom 1: 6-5-4-3-3-3 Symptom 2: 6-5-4-3-3-3 Activity: 5-5-4-2-3-3 Wellbeing: 0-0-0-0-0-0
Pt 9	FM	49	Osteoarthritis -upper back at T12 level	12 months D-Ht+	Yin Xu	Med cupping on Bladder channel	Glucosa-mine sulphate	Symptom 1: 4-1-3-2-4-1 Symptom 2: 3-1-1-4-2-1 Activity: 5-1-4-2-3-2 Wellbeing: 2-1-21-5-1
Pt 10	M	62	Lower back pain + R sciatica pain	4–5 years	K-Qi Xu	Med cupping Moving cupping	None	Symptom 1: 4-3-3-2-4-3 Symptom 2: 3-2-2-2-3-2 Activity: 4-2-2-1-3-2 Wellbeing: 1-1-1-1-1-4
Pt 11	FM	45	Lower back pains + stiffness across the back	8 years	Qi Xu	Cupping	None	Symptom1: 3-5-1-3-2-1 Symptom 2: 5-5-2-3-2-1 Activity: 4-5-2-2-2-1 Wellbeing: 3-3-2-2-2-1
Pt 12	M	53	Lower back pain with shooting pain inside leg	1 year	Blood + Qi stagnation	Med cupping	None	Symptom 1: 3-2-2-1-1-1 Symptom 2: 2-1-1-0-1-1 Activity: 3-2-1-1-1-0 Wellbeing: 3-3-3-1-1-1
Pt 13	M	37	R knee pain radiating to R calf muscle	1 year	Bi syndrome	Needle cupping	None	Symptom 1: 4-4-4-4-4 Symptom 2: 4-4-4-3-3 Activity: 4-4-4-4-3 Wellbeing: 3-3-2-3-3
Pt 14	FM	23	Both knees painful + lower back pain	5 years+	Blood + Qi Xu	Med cupping	None	Symptom 1: 2-5-2 Symptom 2: 4 Activity: 3-4 Wellbeing: 3

TABLE 16-3 Pathology Test Results for Portsmouth University Cupping Project

Date	Pt no.	Hb	RBC	WBC	Plt count	Neut	Lymph	Mono	Eos	Baso	ESR	Fibrinogen	CRP	IgG screen	Ferritin
		g/dL	$\times 10^{12}$/L	$\times 10^{9}$/L	$\times 10^{9}$/L	$\times 10^{9}$/L	$\times 10^{9}$/L	$\times 10^{9}$/L	$\times 10^{9}$/L	$\times 10^{9}$/L	mm/h	g/L	mg/L	g/L	µg/L
06/11/2006	2	13.0	4.44	8.1	289	5.1	2.0	0.6	0.2	0.1	23	4.6	3	15.90	38.7
"	4	12.9	4.32	6.9	342	4.2	2.0	0.5	0.1	0.0	10	2.8	2	8.59	13.1
"	8	14.7	4.07	7.6	280	4.8	2.1	0.6	0.1	0.0	6	2.7	2	20.10	40.1
"	3	13.2	4.55	7.4	378	4.5	2.1	0.6	0.2	0.1	4	2.5	2	11.10	10.9
"	5	14.3	4.55	9.1	274	4.6	3.7	0.7	0.1	0.1	2	2.5	<1	10.60	172.6
"	6	13.9	4.24	9.5	265	6.0	2.9	0.5	0.1	0.0	8	3.4	4	13.50	78.7
"	7	13.7	4.44	10.6	268	7.2	2.6	0.7	0.1	0.1	4	3.3	3	12.90	92.6
07/11/2006	10	17.9	n/a	11.0	218	7.0	3.5	0.4	0.1	0.0	4	Insufficient	5	9.60	85.8
"	11	12.7	n/a	8.0	413	4.0	3.2	0.5	0.3	0.0	26	3.7	1	12.20	28.4
"	12	15.7	n/a	6.8	334	4.0	1.9	0.7	0.2	0.0	11	4.0	8	10.90	116.8
"	13	15.9	n/a	9.7	349	6.7	2.3	0.5	0.1	0.0	5	2.9	3	11.10	64.3
"	14	14.7	n/a	12.2	Clumped**	6.9	3.9	0.9	0.4	0.1	5	3.5	7	18.80	41.5
21/11/2006 & 22/22/2006	2	12.4	4.24	6.4	258	4.7	1.1	0.6	0.0	0.0	27	4.5	60	14.50	66.6
	4	12.2	4.14	7.8	363	4.7	2.4	0.6	0.1	0.0	10	2.6	<5	8.78	12.6
	8	14.4	4.38	6.3	320	3.7	2.0	0.5	0.0	0.0	6	2.9	2	18.90	36.4
	3	12.7	4.46	9.3	488	6.6	2.0	0.3	0.3	0.1	5	2.6	<5	10.30	10.5
	5	14.2	4.53	7.5	321	3.6	3.2	0.5	0.2	0.1	4	2.3	<1	9.70	147.9
	6	14.5	4.46	7.6	295	4.4	2.6	0.5	0.1	0.0	8	4.0	5	13.10	82.4
	7	13.2	4.34	9.8	346	6.8	2.2	0.7	0.1	0.1	6	3.5	<5	11.80	71.1
	10	16.0	5.17	11.7	284	7.2	3.7	0.7	0.2	0.1	Clotted	Insufficient	<5	9.43	83.7
	11	14.0	4.85	6.8	392	3.9	2.4	0.4	0.2	0.0	20	4.0	<5	12.90	19.3
	12	15.7	4.59	7.2	339	4.4	2.0	0.6	0.2	0.0	4	3.2	2	12.20	132.9
	13	14.8	4.76	11.3	336	8.5	1.9	0.8	0.1	0.0	6	3.2	8	9.90	59.4
	14														
	9	12.6	4.30	4.7	373	2.6	1.8	0.3	0.0	0.0	16	3.7	4	8.60	104.8
11/12/2006 & 12/12/2006	2	12.9	4.40	6.1	314	3.6	1.9	0.4	0.1	0.0	23	3.8	<5	17.60	27.8
	4	12.5	4.24	7.4	346	4.9	1.9	0.5	0.1	0.0	8	2.4	<5	7.62	8.2
	8	14.9	4.48	7.0	292	2.0	2.0	0.5	0.1	0.0	7	2.5	<5	22.30	150.2
	3	12.8	4.45	6.9	393	4.2	2.0	0.4	0.2	0.0	5	1.9	<5	9.96	12.0
	5	14.3	4.51	8.6	292	4.9	2.8	0.8	0.1	0.0	2	2.4	<5	8.97	????
	6***	13.7	4.21	8.2	262	5.0	2.6	0.4	0.1	0.0	7	2.7	<5	9.61	72.3
	7	13.7	4.45	9.9	280	6.6	2.5	0.7	0.1	0.0	2	3.3	<5	11.90	72.0
	10	16.4	5.24	12.3	252	7.1	4.1	0.9	0.2	0.1	5	3.4	8	9.27	74.3
	11	13.0	4.52	8.4	416	4.8	2.9	0.5	0.2	0.0	23	2.9	<5	13.90	15.5
	12	16.0	4.60	5.7	359	3.0	1.8	0.6	0.2	0.1	8	3.3	<5	10.60	100.6
	13	15.6	4.98	10.1	317	6.7	2.4	0.8	0.2	0.0	5	2.4	3	10.30	44.4
	14														
	9	13.2	4.50	4.6	383	2.5	1.8	0.3	0.0	0.0	14	3.1	<5	8.59	103.8

Normal ranges: CRP: <5 mg/mL; IgG: 5.4–16.1 g/L.
** Unsuitable for accurate count.
***EDTA sample received unlabelled.

reduction in the erythrocyte sedimentation rate (ESR), a broad marker of inflammation. The aim of the current study was to identify inflammatory marker(s) whose plasma concentrations are altered during cupping therapy in the treatment of musculoskeletal disorders and which may account for changes in the ESR. This will provide biochemical evidence for the effectiveness of cupping therapy.

METHODS

Fourteen patients presenting with a range of chronic musculoskeletal complaints (diagnosed as Empty, Mixed and Full conditions) were recruited into the study. Full informed consent was obtained from each. A traditional diagnosis was then performed and the cupping treatment strategy determined accordingly. Each person then received six cupping treatments at weekly intervals. Prior to the first treatment and thereafter at weekly intervals, subjects completed a MYMOP questionnaire in order to assess clinical outcome. Venous blood samples were also obtained before treatment, after three treatments, after six treatments and 6 weeks post treatment. The following analyses were performed on blood samples: full blood count, haemoglobin concentration, erythrocyte sedimentation rate (ESR), serum concentration of fibrinogen, C-reactive protein (CRP), IgG and ferritin. Serum samples were also analysed for the concentration of inflammatory cytokines (IL-1β, IL-6, IL-10 and TNF-α). Data obtained were analysed by one-way ANOVA with matched values and Dunnett's Multiple Comparisons Test using Instat2 software.

RESULTS

Nine females (range 23–52 years) and 5 males (range 37–62 years) were recruited into the study. One female participant subsequently withdrew from the study at week 3. Analysis of MYMOP questionnaires indicated that 95% of patients reported improvements in their symptoms as a result of treatment and, overall, this improvement was found to significant.

Complete data sets from blood and serum analysis (before, during and after treatment) were obtained for 11 subjects. The 6-week post-treatment follow-up was 54%. Analysis of data revealed statistically significant increases in the platelet count ($p = 0.0373$) and lymphocyte count ($p = 0.0001$), and decreases in the serum concentration of fibrinogen ($p = 0.0008$) and ferritin ($p = 0.0024$). No changes were measured in the serum concentration of pro-inflammatory cytokines, with the exception of one patient where slight increases above normal levels were seen in TNF-α, IL-6 and IL-10 concentrations. Interestingly no significant change in the ESR was observed in these subjects, however, only three subjects presented with an elevated ESR before treatment.

DISCUSSION AND CONCLUSION

Ferritin and fibrinogen are inflammatory markers and their reduction during cupping therapy is concomitant with a reduction in the inflammatory status of the patient. Platelets and lymphocytes may increase as a result of local vascular damage from the cupping therapy itself or from a reduction in the adherence of these cells to areas of activated endothelium, which is associated with inflammation. With regard to the ESR, no overall significant change was observed in this study. However, only three patients presented with an elevated ESR prior to treatment. Furthermore, the ESR did decrease during the course of treatment in these subjects. In conclusion, although the precise mechanism by which cupping therapy exerts its therapeutic effects cannot be determined from the present study, the results indicate that cupping therapy is associated with significant changes in the levels of inflammatory cells and soluble markers, which suggests that this treatment can influence the inflammatory status of the patient leading to improved clinical outcome.

The Investigators

Ilkay Chirali is one of the foremost exponents of cupping in the UK and is the author of several publications on the subject. He has been a practitioner of acupuncture for over 20 years and currently practises from his clinic in Bexley Heath, Kent.

Dr Roslyn Gibbs, PhD is a Principal Lecturer in Biomedical Sciences at the University of Portsmouth where she specialises in immunology and molecular biology. She has been conducting research on aspects of immunology for approximately 14 years. She is also a practicing acupuncturist.

Mark Bovey is a practising acupuncturist and Co-ordinator of the Acupuncture Research Resource Centre at Thames Valley University. He is also a member of the British Acupuncture Council's Research Committee.

Dissemination of Research/Publications to Date

Poster presentation at the Society for Acupuncture Research (SAR) Conference, Baltimore, USA November 2007. Abstract from SAR presentation published in the *Journal of Complementary and Alternative Medicine*, Oct 2007, Vol 13. Invited presentation at the ARRC symposium, June 2008, London, UK. Powerpoint slides of this presentation will soon be available on the ARRC website.

Research Study 3 *Cupping and Myofascial Pain Syndrome*

Hossam Metwally

ABSTRACT

There is an increasing need to examine the effectiveness of traditional Chinese medicine and other alternative therapies for common conditions. However, little attention has been focused on cupping as a sole intervention for any illness.

Background. Cupping (Dry or Wet) has been used for a long time for treating acute and chronic illnesses including pain. Many doctors and practitioners in the field of pain management – including myself – have been using it as part of the management of several painful conditions; yet the effectiveness of this technique has not been evaluated according to Western standards.

Methods. A self-reported observational study of patients previously diagnosed with myofascial pain syndrome was conducted to investigate symptomatic improvement with Sliding (Dry) cupping. The objective was to evaluate the effectiveness of using cupping in clinical practice as a technique for managing myofascial pain syndrome and improving patients' quality of life.

Primary outcome measure: changes in the patients' quality of life using *SF36* questionnaire. Secondary outcome measures: changes in anxiety and depression status using the Hospital Anxiety and Depression Score (HADS), changes in the pain interference with many variables according to the Brief Pain Inventory (BPI) score and changes in consumption of 'as-required' (PRN) pain medication as a result of cupping intervention.

Forty-two outpatients with myofascial pain syndrome, not previously treated with cupping and receiving treatment in the Chronic Pain Management Clinic, Diana Princess of Wales and Scunthorpe Hospitals, North East Lincolnshire and Goole NHS Trust were involved from January 2005 to March 2006. Each patient initially visited the therapist for an explanation, demonstration, discussion and to give consent. Each patient then visited the provider twice a week for 10 consecutive weeks. Only five to eight patients were assigned to each group and each could be seen twice per week; this entailed running the study over 15 months.

Different-sized plastic cups were applied according to the area of treatment and oil (baby oil) was used as a lubricant. The treatment was given twice a week for 3 to 20 minutes per session, the duration being guided by the appearance of the petechiae.

After the 10-week treatment, the effect was evaluated according to subjective symptoms, signs, and scores reported by the patients.

Initial and personal data were originally obtained from the Patient's Audit Collection System (PACS) in the pain service department. An average of HADS and BPI scores was calculated for every patient in the study. Each patient filled in a baseline form for the SF36, HADS and BPI before commencing the study, whilst sitting in the clinic before the first session. 'As required' (PRN) pain medication was tabulated for each patient and an average consumption of medication per week was recorded initially. Each patient was also given a diary to record the PRN medication plus any event that may interfere with pain, with the date and time.

All scores from before and after the intervention were presented to the statistician in a spreadsheet using Microsoft Excel; where a simple paired t-test was performed. The mean, standard deviation, standard error of the mean, *t* value and *P* value were calculated.

Results. All patients enrolled in this study showed an overall improvement as follows: SF36–Physical Health Score (PHS) = 33%, Mental Health Score (MHS) = 32.2%; Hospital Anxiety and Depression Score (HADS)–anxiety (AN) = 37.9%, depression (DEP) = 40.3%; Visual Analogue Score now (VASn) = 39.5%; pain interfering with general activity (GA) = 44.8%, pain interfering with normal work (NW) = 42.9%, pain interfering with mood (Mo) = 42.1%, pain interfering with relations with others = 30.2%, pain interfering with sleep (S) = 62.1%, pain interfering with walking ability (WA) = 44.7%, pain interfering with enjoyment with life (EOL) = 28%; PRN medications decreased by 56.2%.

Conclusion. Use of cupping (Dry, Sliding) technique to improve the condition of myofascial pain syndrome has shown promising results. The result obtained from this simple work suggests that cupping could have a place in the management of myofascial pain syndrome.

INTRODUCTION: EXAMINING THE EFFECT OF CUPPING ON THE MANAGEMENT OF MYOFASCIAL PAIN SYNDROME

There is an increasing need to examine the effectiveness of TCM and other alternative therapies for common conditions; however, little attention has focused on cupping as a sole intervention for any illness. Many patients in the pain clinic repeatedly report a pleasant experience after visiting complementary therapy practitioners as private clients and, amongst the interventions used, 'acupuncture' and 'cupping' have received the highest praises. Cupping (Dry or Wet) has been used for a long time for treating acute and chronic illnesses including pain. Wet cupping has been reported by many practitioners, as well as patients, to be particularly effective in such conditions as headache, migraine, trigeminal neuralgia, cervicobrachial syndrome, frozen shoulder, tennis elbow, sciatica, lower back pain and osteoarthritis; Sliding cupping has been reported to be effective in conditions such as myofascial pain as well as sciatica, lower back pain and general wellbeing.

In traditional terminology, its main effects are dredging the meridian system, activating Qi and removing Blood stasis. However, to the Western-trained physician, the diagnostic categories of traditional Chinese medicine (TCM) can appear mystifying and frequently seem to obfuscate more than clarify. Often, the conditions referred to in TCM appear to be bizarre descriptions of things considered irrelevant in conventional practice. Qi and Blood stagnation/excess/deficiency is a case in point. As physicians, we are confronted regularly with patients who have a mixture of chronic pain, numbness, or paraesthesias in association with and overlapping such systemic symptoms as fatigue, frustration and general malaise. Despite the best of intentions, physicians often have little idea how to categorize such patients, and such diagnostic confusion does not help formulate a coherent treatment plan.

Many doctors and practitioners in the field of pain management – including myself – have been using cupping as part of the management of several painful conditions; yet the effectiveness of this technique has not yet been evaluated according to Western standards. In this study, Dry cupping (Sliding technique) was offered to 50 patients suffering from myofascial pain syndrome. The aim was to evaluate its effect on their symptoms and their general health status. Forty-two patients agreed to try the technique and enrolled in a 10-week intervention. Twenty sessions in total were given to each patient, with two sessions taking place per week. The effect was evaluated as differences or changes in 'general health status' represented by SF36[1] questionnaire and 'psychological status' according to the Hospital Anxiety and Depression Score (HADS). The influence of pain on their normal 'daily life activities' was assessed by the Brief Pain Inventory (BPI). The consumption of pain-relieving medication was monitored to detect any increase or decrease in consumption due to the intervention.

METHODS

Objectives

- To probe into symptomatic improvement of myofascial pain syndrome with Sliding (Dry) cupping
- To determine the relationship between improvement and the course of disease as well as many other variables
- To evaluate the effectiveness of using cupping in our clinical practice as a technique for managing myofascial pain and to improve the quality of life.

Study Type

Self-reported observation on patients previously diagnosed with myofascial pain syndrome.

Project Type

Process.

Basis of Proposal

High volume.

Perceived Benefits to the Patient

- To improve the quality of life and if possible improve the pain score and decrease the quantity of painkillers required.

Perceived Benefits to the Organization

- To decrease the number of visits to and dependency on the pain service
- To decrease the number of procedures or surgical interventions to alleviate pain
- To decrease the amount of painkillers required with their high cost and unwanted side-effects
- To decrease the cost of running the pain service, through the above three.

Perceived Benefits to the Community

- Possible speedy return to work for susceptible patients
- Less dependence on community social and financial help and support
- Individuals with 'better quality of life' are less of a psychological and social burden on the society.

Standards Agreed

- Improvement in the quality of life by 30% or more in at least 50% of patients, in whom their scores were 'average' or lower as represented by SF36 questionnaire
- Improvement in anxiety and depression by 30% or more in at least 50% of patients, in whom their scores were 'average' or higher as represented by Hospital Anxiety and Depression Score (HADS)
- Improvement in pain scores by 30% or more in at least 50% of patients, in whom their scores were 'average' or higher as represented by Visual Analogue Score (VAS)
- Improvement in the degree of interference of pain in various aspects of daily life by 30% or more in at least 50% of patients, in whom their scores were 'average' or higher as represented by the Brief Pain Inventory Score (BPI)
- Decrease the rescue (PRN [pro re nata – i.e. as required]) medication required by 30% or more in at least 50% of patients.

References/Basis for Standards

Locally agreed standards.

Participants

A total of 42 outpatients with myofascial pain syndrome receiving treatment in the Chronic Pain Management Clinic, Department of Anaesthesia, Critical Care Division, Diana Princess of Wales and Scunthorpe Hospitals, North East Lincolnshire and Goole NHS trust were involved from January 2005 to March 2006.

Letters of invitation were sent to all adult patients with previously diagnosed myofascial pain syndrome who have been under the Chronic Pain Service in the Trust for 1 year or more, with no underlying pathology, and who met the following inclusion criteria.

Inclusion Criteria

- Age between 18 and 70 years
- Still suffering from pain despite the use of medication and / or intervention.

Exclusion Criteria

- Patients with areas of skin that are inflamed, ulcerated, sores or have allergic skin conditions
- Cases of easy bleeding; pathological or if on any form of anticoagulant
- The abdominal area or lower back during pregnancy or in suspected pregnant ladies
- Areas on the face and cases of high fever and convulsions
- Patients with neurological symptoms or cramping
- Patients with signs of neuropathic pain
- Patients who have used cupping either currently or in the past.

Patient Interview. Patients who replied were invited to an interview with a member of the team.

PATIENT EXPECTATIONS. Patient expectations were analysed and no assurance was given regarding the result of the intervention.

Ethical Approval

Approval was obtained from the Directorate of Governance and Quality Improvement, supported by approval from the Audit Group within the trust.

Consent

All patients signed an informed consent form, after a detailed explanation about the proposed intervention. The consent form information highlighted the intended benefits and commonly occurring complications, for example 'marking'.

Patient's Explanation and Demonstration

- A demonstration was performed on a patient who had previously consented, or a volunteer from the newly recruited patients.
- The demonstration included technique, safety, maximum suction, maximum duration per treatment area, total duration per session and form filling.
- The aim was to give the patients an overall idea about cupping therapy and the degree of marking required for the intended benefit before they gave their consent.
- Pictures, diagrams and a plastic human skeleton were used during the demonstration.

Study Design

- Duration: 10 successive weeks of intervention
- Interval of intervention: twice per week
- Duration of each intervention: 3 to 20 minutes' cupping application depending on the degree of the petechiae produced
- Provider: I was the sole provider because I wanted to keep the intervention constant for all patients during all sessions.

Measurements

PRIMARY OUTCOME MEASURES

- Changes in functional health and wellbeing using the SF36 to identify the changes in physical health status (PHS) and mental health status (MHS).

SECONDARY OUTCOME MEASURES

- Changes in anxiety and depression status using the Hospital Anxiety and Depression Score (HADS)
- Changes in pain interference with many activities using the Brief Pain Inventory (BPI)
- Changes in PRN medication requirement due to cupping intervention.

EXTRA FINDINGS

- Reporting of any other findings that were not originally planned for.

Data Calculation, Analysis and Bias Prevention

- Double blinding was not appropriate in this type of intervention. The agreed blinding method to prevent bias was to prevent the study organizer and the provider from collecting or knowing the scores of any patient.
- The scoring of data was performed by two members of medical staff who are not part of the study group but had enough experience to perform calculations both manually (for HADS and PBI) and over the internet (for SF36). They had no contact with each other.
- Data were then recalculated by a third member of medical staff so as to establish whether there was any disparity between the first and second calculations.
- A different staff member designated the allocation of each patient's forms from 'before' and 'after' the intervention.

- Data calculation and analysis were performed by a member of the Department of Professional Development.
- Data statistical analysis was performed by a statistician from Sheffield University. The statistical output for the results and tables were provided in 'image' format with no possibility of editing results.

The Patient's Initial and Subsequent Visits

- Each patient initially visited the therapy provider for an explanation, demonstration, discussion and to give consent.
- Each patient then visited the provider twice a week for 10 consecutive weeks.
- Only five to eight patients were assigned to each group and each could be seen twice per week; this entailed running the study over 15 months.

Technique

EQUIPMENT

- Different-sized plastic cups were applied according to the area of treatment and oil (baby oil) was used as a lubricant.

INTERVENTIONS

- The patients were asked to position themselves in a relaxing prone or sitting position according to the site of intervention.
- Mechanical suction cupping – Sliding technique – was applied to the patient's affected painful area and/or tender points until petechiae appeared on the skin.
- The treatment was given twice a week for 3 to 20 minutes per session, the duration being guided by the appearance of the petechiae.
- After the 10-week treatment, the effect was evaluated according to subjective symptoms, signs, and the scores reported by the patients.

SAFETY

- The area of intervention was always prepared first.
- Each patient had his or her own private set of cups and was asked to bring them on every visit.
- Materials (size of cups, etc.) for each patient and each patient's condition were chosen before starting the cupping treatment.
- To ensure good hygiene, cups were checked to make sure there were no chips or cracks, and were cleaned.
- An appropriate suction pressure was determined; the rule was 'cupping should not hurt'.

Data Collection

- Initial and personal data were originally obtained from the Patient's Audit Collection System (PACS) in the pain service department. An average of the HADS and BPI scores was calculated for every patient in the study.
- Each patient filled in baseline SF36, HADS and BPI forms before commencing the study, whilst sitting in the clinic before the first session.
- PRN medication was recorded for each patient, with the initial average consumption per week.
- Patients were given a diary to record PRN medication plus any event that might have an effect on their pain, with a date and time.
- Each patient was twice allocated a number between 1 and 100, and his/her forms were identified only by these numbers. Two copies of each form were assigned to each patient, for 'before' and 'after' the intervention.

Data Calculations and Statistical Analysis

All scores, both baseline and post intervention, were presented to the statistician as a Microsoft Excel spreadsheet, in which a simple paired t-test was performed. The mean, standard deviation, standard error of the mean, *t* value and *P* value were calculated. (For initial patient analysis see Tables 16-4 to 16-12.)

TABLE 16-4 Gender of Patients

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	16	38.1	38.1	38.1
	Male	26	61.9	61.9	100.0
	Total	42	100.0	100.0	

TABLE 16-5 Age of Patients

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	23	2	4.8	4.8	4.8
	25	1	2.4	2.4	7.1
	26	1	2.4	2.4	9.5
	27	2	4.8	4.8	14.3
	28	1	2.4	2.4	16.7
	29	1	2.4	2.4	19.0
	33	1	2.4	2.4	21.4
	34	2	4.8	4.8	26.2
	35	1	2.4	2.4	28.6
	36	2	4.8	4.8	33.3
	37	1	2.4	2.4	35.7
	39	2	4.8	4.8	40.5
	41	1	2.4	2.4	42.9
	42	1	2.4	2.4	45.2
	43	1	2.4	2.4	47.6
	44	1	2.4	2.4	50.0
	45	2	4.8	4.8	54.8
	46	3	7.1	7.1	61.9
	47	3	7.1	7.1	69.0
	48	3	7.1	7.1	76.2
	49	5	11.9	11.9	88.1
	54	2	4.8	4.8	92.9
	57	1	2.4	2.4	95.2
	58	1	2.4	2.4	97.6
	59	1	2.4	2.4	100.0
	Total	42	100.0	100.0	

TABLE 16-6 Patients' Duration of Pain

	< 2 yrs	2– < 4 yrs	4– < 6 yrs	6– < 8 yrs	8– < 10 yrs	10 yrs or more
Male	3	5	3	7	5	3
Female	3	2	4	3	0	4

TABLE 16-7 Patients' Duration in the Pain Clinic

	< 2 yrs	2– <4 yrs	4– <6 yrs	6– < 8 yrs	8– < 10 yrs	≥ 10 yrs
Male	5	4	8	5	4	0
Female	3	4	4	2	2	1

TABLE 16-8 Number of Regular Medications

	No Regular Medication	1 Regular Medication	2 Regular Medication	3 Regular Medication	4 Regular Medication	>4 Regular Medication
Male	0	3	6	7	2	8
Female	1	4	2	2	3	4

TABLE 16-9 Number of As Required (PRN) Medications

	No PRN Medication	1 PRN Medication	2 PRN Medication	3 PRN Medication	4 PRN Medication	>4 PRN Medication
Male	1	8	7	9	1	Nil
Female	1	4	2	2	3	4

TABLE 16-10 Number of Previous Procedures to Relieve Pain

	Nil	One	Two	Three	Four	> Four
Male	2	4	5	3	1	11
Female	2	2	2	0	4	6

TABLE 16-11 Baseline Patient Values: Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	ANa	8.50	42	2.725	.421
	ANb	13.71	42	3.424	.528
Pair 2	AVASa	4.05	42	1.561	.241
	AVASb	5.36	42	1.376	.212
Pair 3	DEPa	9.50	42	2.822	.435
	DEPb	15.88	42	2.752	.425
Pair 4	EOLa	5.12	42	1.966	.303
	EOLb	7.14	42	1.571	.242
Pair 5	GAa	3.95	42	1.847	.285
	GAb	7.14	42	1.539	.238
Pair 6	LVASa	3.00	42	1.913	.295
	LVASb	5.83	42	1.780	.275
Pair 7	MHSa	59.55	42	5.397	.833
	MHSb	45.00	42	7.622	1.176
Pair 8	Moa	4.07	42	2.017	.311
	Mob	7.12	42	1.953	.301
Pair 9	Nwa	4.12	42	2.144	.331
	NWb	7.21	42	1.389	.214
Pair 10	PHSa	57.93	42	6.190	.955
	PHSb	43.52	42	7.306	1.127
Pair 11	RWOa	4.60	42	1.726	.266
	RWOb	6.62	42	1.667	.257
Pair 12	Sa	3.00	42	1.562	.241
	Sb	8.05	42	1.710	.264
Pair 13	VASna	5.31	42	2.225	.343
	VASnb	7.45	42	1.565	.241
Pair 14	Waa	3.67	42	2.281	.352
	Wab	6.71	42	3.126	.482
Pair 15	WVASa	4.95	42	1.975	.305
	WVASb	7.98	42	1.522	.235

TABLE 16-12 Baseline Patient Values: Paired Samples Test

		PAIRED DIFFERENCES							
					95% CONFIDENCE INTERVAL OF THE DIFFERENCE				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	P-value Sig. (2-tailed)
Pair 1	ANa - ANb	–5.2	2.0	.3	–5.8	–4.6	–17.156	41	.000
Pair 2	AVASa - AVASb	–1.3	1.5	.2	–1.8	–.9	–5.827	41	.000
Pair 3	DEPa - DEPb	–6.4	2.6	.4	–7.2	–5.6	–15.660	41	.000
Pair 4	EOLa - EOLb	–2.0	1.8	.3	–2.6	–1.5	–7.395	41	.000
Pair 5	GAa - GAb	–3.2	2.4	.4	–3.9	–2.4	–8.538	41	.000
Pair 6	LVASa - LVASb	–2.8	2.4	.4	–3.6	–2.1	–7.499	41	.000
Pair 7	MHSa - MHSb	14.5	5.2	.8	12.9	16.2	18.100	41	.000
Pair 8	Moa - Mob	–3.0	2.5	.4	–3.8	–2.3	–8.032	41	.000
Pair 9	Nwa - NWb	–3.1	2.2	.3	–3.8	–2.4	–9.183	41	.000
Pair 10	PHSa - PHSb	14.4	5.5	.8	12.7	16.1	17.043	41	.000
Pair 11	RWOa - RWOb	–2.0	1.8	.3	–2.6	–1.5	–7.176	41	.000
Pair 12	Sa - Sb	–5.0	2.3	.4	–5.8	–4.3	–13.936	41	.000
Pair 13	VASna - VASnb	–2.1	2.0	.3	–2.8	–1.5	–6.920	41	.000
Pair 14	Waa - Wab	–3.0	2.3	.4	–3.8	–2.3	–8.414	41	.000
Pair 15	WVASa - WVASb	–3.0	1.9	.3	–3.6	–2.4	–10.212	41	.000

RESULTS (SEE TABLES 16-13 TO 16-34)

Fifty patients were contacted initially; eight patients were excluded for different reasons. Each patient was randomly allocated two numbers, representing before and after intervention respectively. The practitioner was blinded as to the numbers corresponding to each patient.

Adherence to the Protocol

Adherence to the protocol was as follows:

- Filling out the forms (SF36, HADS, BPI): 100%
- Attending the cupping intervention sessions: 87%
- Recording PRN medication: 92%
- Recording any abnormal events: 79%.

Number of Patients Replied

Total: 42.

DISCUSSION

This study ran for 15 months. Every effort was made to ensure that patients would complete the 10-week course of cupping intervention.

Fifty patients were initially selected and interviewed. After an extensive discussion and explanation, eight patients were excluded. The main reason for this was the amount of marking that cupping causes (five patients), others were: expecting to conceive within the next few weeks or months (one young female) and an appointment for an elective surgical procedure within the next 2 months (two patients, with cholecystectomy and routine gynaecological procedures respectively) where interruption of cupping intervention and administration of analgesia, as well as the use of an anticoagulant as a prophylactic against deep vein thrombosis, would be unavoidable.

What Is the Overall Change due to Cupping Intervention?

It was agreed that the percentage of the improvement or deterioration would be calculated as: the change according to the intervention, divided by the initial score multiplied by a hundred (change/initial score×100). Table 16-13 represents the overall improvement or deterioration according to the intervention.

TABLE 16-13 Percentage of Overall Changes in Questionnaire Scores

Variable	% of Change
SF36 physical health status (PHS)	33
SF36 mental health status (MHS)	32.2
Anxiety (AN)	37.9
Depression (DEP)	40.3
Visual Analogue Score now (VASn)	39.5
Least Visual Analogue Score (LVAS)	48.2
Worst Visual Analogue Score (WVAS)	37.6
Average Visual Analogue Score (AVAS)	24.2
Pain interfering with general activity (GA)	44.8
Pain interfering with normal work (NW)	42.9
Pain interfering with mood (Mo)	42.1
Pain interfering with relation with others (RWO)	30.2
Pain interfering with sleep (S)	62.1
Pain interfering with walking ability (WA)	44.7
Pain interfering with enjoyment of life (EOL)	28

According to the statistical results, there were significant overall changes due to cupping intervention. From Table 16-13, the primary outcome measure, reflected by scores in the SF36 questionnaire showed a degree of improvement in physical health status (PHS) and mental health status (MHS) by 14.4 out of 70 (33%) and 14.5 out of 70 (32.2%), respectively, with standard deviations (st.d.) of 5.5 and 5.2, respectively. In simple terms this improvement, if applied evenly to the patient with the lowest physical and mental scores (31 out of 70) would shift the patient from having severe physical and mental impairment to a near average score.

Other values also showed high improvement markers; for example, the anxiety score improved, out of 21, by 5.2 (37.9%) and the depression score improved, out of 21, by 6.4 (40.3%) with standard deviations of 2.0 and 2.6 respectively. The mean anxiety and depression scores before the intervention were 13.71 and 15.8 out of 21 respectively; these are categorised as moderate to severe anxiety and depression. The improved scores achieved post intervention would be categorised as minor or insignificant in both cases.

The pain score also showed some improvement. For the Visual Analogue Scores (VAS) before and after the intervention (VASn) the improvement was 2.1 (39.5%), while the least VAS (LVAS) and the worst VAS (WVAS) improved by 2.8 and 3.0 (38.2% and 37.6%), respectively.

Pain interfering with general activity (GA) and normal work (NW) improved, out of 10, by 3.2 and 3.1 (44.8% and 42.9%) respectively. Mood (Mo) and enjoyment of life (EOL) scores also improved (out of 10) by 3.0 and 2.0 (42.1% and 28%), respectively, as did scores for normal work (NW) which improved by 3.1(42.9%), and walking ability (WA), which improved by 3.0 (44.7%). However, the best improvement was in the sleep score, which showed an improvement of 5.0 (62.1%) after the intervention. The *p* value was significant (less than 0.05) for all scores.

Which Gender Responded Better to the Intervention (Tables 16-14 to 16-17)?

It was notable from the initial scores before the intervention that female patients had slightly higher scores of anxiety and depression (14.1 and 16.3 respectively) compared with male patients (13.4 and 15.6). The improvement after cupping intervention amongst female patients was slightly better than in male patients. Anxiety and depression scores improved by 5.6 (39.7%) and 6.7 (41.4%) in female patients, compared with 4.9 (36.8%) and 6.1 (39.4%) in male patients.

The Visual Analogue Scores showed marked improvement in both genders, with a better response in the female patients as noted from the results:

VAS improvement: Female = 2.6 (34%); male = 1.8 (25.2%)
Least VAS improvement: Female = 3.4 (56.6%); male = 2.4 (43.2%)
Worst VAS improvement: Female = 4.0 (48.1%); male = 2.3 (30.9%).

However, the improvement of physical and mental health status measured by the SF36 showed almost no difference between male and female patients:

PHS: Female = 14.5 (33.8%); male = 14.3 (32.7)
MHS: Female = 15.7 (36.9%); male = 13.8 (29.8%).

TABLE 16-14 Overall Changes due to Cupping Intervention in Female Patients: Paired Samples Statistics[a]

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	ANa	8.50	16	3.011	.753
	ANb	14.13	16	3.594	.898
Pair 2	AVASa	3.81	16	1.601	.400
	AVASb	5.50	16	1.932	.483
Pair 3	DEPa	9.56	16	2.555	.639
	DEPb	16.31	16	2.845	.711
Pair 4	EOLa	5.00	16	1.713	.428
	EOLb	7.38	16	1.258	.315
Pair 5	GAa	3.50	16	1.826	.456
	GAb	7.63	16	1.258	.315
Pair 6	LVASa	2.63	16	2.187	.547
	LVASb	6.06	16	1.731	.433
Pair 7	MHSa	58.44	16	5.189	1.297
	MHSb	42.69	16	7.735	1.934
Pair 8	Moa	3.81	16	1.974	.493
	Mob	7.88	16	1.258	.315
Pair 9	Nwa	3.81	16	1.642	.410
	NWb	7.19	16	1.328	.332
Pair 10	PHSa	57.38	16	6.937	1.734
	PHSb	42.88	16	8.302	2.075
Pair 11	RWOa	4.63	16	1.821	.455
	RWOb	7.13	16	1.408	.352
Pair 12	Sa	2.75	16	1.238	.310
	Sb	8.44	16	1.209	.302
Pair 13	VASna	5.06	16	2.175	.544
	VASnb	7.69	16	1.621	.405
Pair 14	Waa	3.38	16	2.062	.515
	Wab	7.31	16	2.626	.656
Pair 15	WVASa	4.38	16	2.094	.523
	WVASb	8.44	16	1.459	.365

[a]Gender = Female

TABLE 16-15 Overall Changes due to Cupping Intervention in Female Patients: Paired Samples Test[a]

		PAIRED DIFFERENCES							
					95% CONFIDENCE INTERVAL OF THE DIFFERENCE				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	ANa - ANb	−5.625	2.062	.515	−6.724	−4.526	−10.914	15	.000
Pair 2	AVASa - AVASb	−1.688	1.401	.350	−2.434	−.941	−4.818	15	.000
Pair 3	DEPa - DEPb	−6.750	2.793	.698	−8.238	−5.262	−9.668	15	.000
Pair 4	EOLa - EOLb	−2.375	1.928	.482	−3.402	−1.348	−4.928	15	.000
Pair 5	GAa - GAb	−4.125	1.893	.473	−5.134	−3.116	−8.716	15	.000
Pair 6	LVASa - LVASb	−3.438	2.159	.540	−4.588	−2.287	−6.368	15	.000
Pair 7	MHSa - MHSb	15.750	4.450	1.112	13.379	18.121	14.158	15	.000
Pair 8	Moa - Mob	−4.063	1.692	.423	−4.964	−3.161	−9.605	15	.000
Pair 9	Nwa - NWb	−3.375	1.928	.482	−4.402	−2.348	−7.003	15	.000
Pair 10	PHSa - PHSb	14.500	6.229	1.557	11.181	17.819	9.311	15	.000
Pair 11	RWOa - RWOb	−2.500	1.506	.376	−3.302	−1.698	−6.642	15	.000
Pair 12	Sa - Sb	−5.688	1.493	.373	−6.483	−4.892	−15.237	15	.000
Pair 13	VASna - VASnb	−2.625	1.668	.417	−3.514	−1.736	−6.294	15	.000
Pair 14	Waa - Wab	−3.938	1.806	.452	−4.900	−2.975	−8.720	15	.000
Pair 15	WVASa - WVASb	−4.063	1.526	.382	−4.876	−3.249	−10.648	15	.000

[a]Gender = Female

TABLE 16-16 Overall Changes due to Cupping Intervention in Male Patients: Paired Samples Statistics[a]

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	ANa	8.50	26	2.596	.509
	ANb	13.46	26	3.361	.659
Pair 2	AVASa	4.19	26	1.550	.304
	AVASb	5.27	26	.919	.180
Pair 3	DEPa	9.46	26	3.023	.593
	DEPb	15.62	26	2.714	.532
Pair 4	EOLa	5.19	26	2.136	.419
	EOLb	7.00	26	1.744	.342
Pair 5	GAa	4.23	26	1.840	.361
	GAb	6.85	26	1.642	.322
Pair 6	LVASa	3.23	26	1.728	.339
	LVASb	5.69	26	1.828	.358
Pair 7	MHSa	60.23	26	5.509	1.080
	MHSb	46.42	26	7.339	1.439
Pair 8	Moa	4.23	26	2.065	.405
	Mob	6.65	26	2.171	.426
Pair 9	Nwa	4.31	26	2.413	.473
	NWb	7.23	26	1.451	.285
Pair 10	PHSa	58.27	26	5.800	1.138
	PHSb	43.92	26	6.764	1.327
Pair 11	RWOa	4.58	26	1.701	.334
	RWOb	6.31	26	1.761	.345
Pair 12	Sa	3.15	26	1.736	.341
	Sb	7.81	26	1.939	.380
Pair 13	VASna	5.46	26	2.284	.448
	VASnb	7.31	26	1.543	.303
Pair 14	Waa	3.85	26	2.428	.476
	Wab	6.35	26	3.393	.666
Pair 15	WVASa	5.31	26	1.850	.363
	WVASb	7.69	26	1.517	.298

[a]Gender = Male

TABLE 16-17 Overall Changes due to Cupping Intervention in Male Patients: Paired Samples Test[a]

		PAIRED DIFFERENCES							
					95% CONFIDENCE INTERVAL OF THE DIFFERENCE				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	ANa - ANb	−4.962	1.907	.374	−5.732	−4.191	−13.263	25	.000
Pair 2	AVASa - AVASb	−1.077	1.468	.288	−1.670	−.484	−3.742	25	.001
Pair 3	DEPa - DEPb	−6.154	2.572	.504	−7.193	−5.115	−12.200	25	.000
Pair 4	EOLa - EOLb	−1.808	1.674	.328	−2.484	−1.132	−5.507	25	.000
Pair 5	GAa - GAb	−2.615	2.562	.503	−3.650	−1.580	−5.204	25	.000
Pair 6	LVASa - LVASb	−2.462	2.580	.506	−3.504	−1.419	−4.864	25	.000
Pair 7	MHSa - MHSb	13.808	5.579	1.094	11.554	16.061	12.621	25	.000
Pair 8	Moa - Mob	−2.423	2.671	.524	−3.502	−1.344	−4.626	25	.000
Pair 9	Nwa - NWb	−2.923	2.348	.461	−3.872	−1.975	−6.347	25	.000
Pair 10	PHSa - PHSb	14.346	5.091	.998	12.290	16.402	14.370	25	.000
Pair 11	RWOa - RWOb	−1.731	1.971	.387	−2.527	−.935	−4.478	25	.000
Pair 12	Sa - Sb	−4.654	2.697	.529	−5.743	−3.564	−8.798	25	.000
Pair 13	VASna - VASnb	−1.846	2.167	.425	−2.721	−.971	−4.344	25	.000
Pair 14	Waa - Wab	−2.500	2.502	.491	−3.511	−1.489	−5.095	25	.000
Pair 15	WVASa - WVASb	−2.385	1.878	.368	−3.143	−1.626	−6.475	25	.000

[a]Gender = Male

Female patients showed a better response than male patients in all other scores, as noted from the results. These differences were more marked (almost twice as much) in general activity, mood and relations with others, but improvements in females were still higher than in males in walking ability, normal work, enjoyment of life and sleep.

What Pain Site / Sites Is / are Most Responsive to the Intervention?

The data on distribution of pain sites are summarized in Tables 16-18 to 16-20.The five main sites identified were: neck, shoulder(s), upper back, lower back and sacroiliac joint, while the sixth was considered as a mix of any of the above.

The results summarized in Tables 16-21 to 16-33 indicate that the response to the intervention was variable from site to site (e.g. the best improvement in VAS scores, pain affecting mood, relations with others and enjoyment of life were in the patients with neck pain). Their VAS scores were initially around average, but they responded significantly to the intervention. While walking ability scores notably decreased in those patients (by 64.2%), this should not be considered significant because their initial score was below average (4.67 out of 10).

TABLE 16-18 Site of Pain in Female Patients[a]

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neck	2	12.5	12.5	12.5
	Shoulders	1	6.3	6.3	18.8
	Upper back	1	6.3	6.3	25.0
	Lower back	5	31.3	31.3	56.3
	Mix of two or more of the above	7	43.8	43.8	100.0
	Total	16	100.0	100.0	

[a]Gender = Male

TABLE 16-19 Site of Pain in Male Patients[a]

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neck	1	3.8	3.8	3.8
	Shoulders	5	19.2	19.2	23.1
	Upper back	2	7.7	7.7	30.8
	Lower back	7	26.9	26.9	57.7
	Sacroiliac region	3	11.5	11.5	69.2
	Mix of two or more of the above	8	30.8	30.8	100.0
	Total	26	100.0	100.0	

[a]Gender = Male

TABLE 16-20 Site of Pain in all Patients

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neck	3	7.1	7.1	7.1
	Shoulders	6	14.3	14.3	21.4
	Upper back	3	7.1	7.1	28.6
	Lower back	12	28.6	28.6	57.1
	Sacroiliac region	3	7.1	7.1	64.3
	Mix of two or more of the above	15	35.7	35.7	100.0
	Total	42	100.0	100.0	

TABLE 16-21 Response to the Intervention According to Site of Pain – Neck: Paired Samples Statistics[a]

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	ANa	7.00	3	4.359	2.517
	ANb	11.00	3	4.583	2.646
Pair 2	AVASa	2.67	3	2.082	1.202
	AVASb	4.33	3	.577	.333
Pair 3	DEPa	8.33	3	4.163	2.404
	DEPb	13.00	3	2.000	1.155
Pair 4	EOLa	3.00	3	1.000	.577
	EOLb	7.33	3	2.082	1.202
Pair 5	GAa	2.67	3	1.155	.667
	GAb	7.00	3	1.000	.577
Pair 6	LVASa	1.33	3	2.309	1.333
	LVASb	5.00	3	1.000	.577
Pair 7	MHSa	63.00	3	4.000	2.309
	MHSb	50.00	3	2.646	1.528
Pair 8	Moa	2.67	3	2.517	1.453
	Mob	6.00	3	2.000	1.155
Pair 9	Nwa	3.33	3	1.528	.882
	NWb	7.00	3	1.000	.577
Pair 10	PHSa	61.00	3	4.583	2.646
	PHSb	46.67	3	4.041	2.333
Pair 11	RWOa	3.00	3	1.000	.577
	RWOb	7.33	3	1.155	.667
Pair 12	Sa	2.00	3	.000	.000
	Sb	8.67	3	2.309	1.333
Pair 13	VASna	3.33	3	2.517	1.453
	VASnb	6.00	3	1.000	.577
Pair 14	Waa	1.67	3	1.528	.882
	Wab	4.67	3	4.163	2.404
Pair 15	WVASa	2.33	3	2.309	1.333
	WVASb	7.00	3	1.732	1.000

[a]Site of pain = Neck

TABLE 16-22 Response to the Intervention According to Site of Pain – Neck: Paired Samples Test[a]

		PAIRED DIFFERENCES							
					95% CONFIDENCE INTERVAL OF THE DIFFERENCE				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	ANa - ANb	–4.000	1.000	.577	–6.484	–1.516	–6.928	2	.020
Pair 2	AVASa - AVASb	–1.667	1.528	.882	–5.461	2.128	–1.890	2	.199
Pair 3	DEPa - DEPb	–4.667	2.309	1.333	–10.404	1.070	–3.500	2	.073
Pair 4	EOLa - EOLb	–4.333	1.528	.882	–8.128	–.539	–4.914	2	.039
Pair 5	GAa - GAb	–4.333	2.082	1.202	–9.504	.838	–3.606	2	.069
Pair 6	LVASa - LVASb	–3.667	2.517	1.453	–9.918	2.585	–2.524	2	.128
Pair 7	MHSa - MHSb	13.000	1.732	1.000	8.697	17.303	13.000	2	.006
Pair 8	Moa - Mob	–3.333	2.082	1.202	–8.504	1.838	–2.774	2	.109
Pair 9	Nwa - NWb	–3.667	2.309	1.333	–9.404	2.070	–2.750	2	.111
Pair 10	PHSa - PHSb	14.333	4.509	2.603	3.132	25.535	5.506	2	.031
Pair 11	RWOa - RWOb	–4.333	2.082	1.202	–9.504	.838	–3.606	2	.069
Pair 12	Sa - Sb	–6.667	2.309	1.333	–12.404	–.930	–5.000	2	.038
Pair 13	VASna - VASnb	–2.667	1.528	.882	–6.461	1.128	–3.024	2	.094
Pair 14	Waa - Wab	–3.000	3.000	1.732	–10.452	4.452	–1.732	2	.225
Pair 15	WVASa - WVASb	–4.667	.577	.333	–6.101	–3.232	–14.000	2	.005

[a]Site of pain = Neck

TABLE 16-23 Response to the Intervention According to Site of Pain – Shoulders: Paired Samples Statistics[a]

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	ANa	8.33	6	1.506	.615
	ANb	14.17	6	.408	.167
Pair 2	AVASa	5.00	6	1.789	.730
	AVASb	5.67	6	1.506	.615
Pair 3	DEPa	9.33	6	1.366	.558
	DEPb	16.67	6	2.338	.955
Pair 4	EOLa	4.33	6	1.862	.760
	EOLb	6.00	6	1.673	.683
Pair 5	GAa	5.17	6	1.602	.654
	GAb	5.83	6	2.639	1.078
Pair 6	LVASa	4.67	6	2.160	.882
	LVASb	5.50	6	1.871	.764
Pair 7	MHSa	60.17	6	4.355	1.778
	MHSb	43.33	6	8.892	3.630
Pair 8	Moa	4.50	6	2.429	.992
	Mob	6.00	6	3.286	1.342
Pair 9	Nwa	4.67	6	2.251	.919
	NWb	7.00	6	2.191	.894
Pair 10	PHSa	59.00	6	5.292	2.160
	PHSb	45.83	6	8.280	3.380
Pair 11	RWOa	4.67	6	1.862	.760
	RWOb	5.83	6	2.401	.980
Pair 12	Sa	3.67	6	2.251	.919
	Sb	7.33	6	2.805	1.145
Pair 13	VASna	6.00	6	1.897	.775
	VASnb	7.67	6	1.211	.494
Pair 14	Waa	3.00	6	2.608	1.065
	Wab	3.67	6	3.327	1.358
Pair 15	WVASa	5.83	6	1.472	.601
	WVASb	7.83	6	1.602	.654

[a]Site of pain = Shoulders

TABLE 16-24 Response to the Intervention According to Site of Pain – Shoulders: Paired Samples Test[a]

		PAIRED DIFFERENCES							
					95% CONFIDENCE INTERVAL OF THE DIFFERENCE				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	ANa - ANb	–5.833	1.472	.601	–7.378	–4.289	–9.707	5	.000
Pair 2	AVASa - AVASb	–.667	2.066	.843	–2.834	1.501	–.791	5	.465
Pair 3	DEPa - DEPb	–7.333	2.805	1.145	–10.277	–4.390	–6.404	5	.001
Pair 4	EOLa - EOLb	–1.667	1.633	.667	–3.380	.047	–2.500	5	.054
Pair 5	GAa - GAb	–.667	3.327	1.358	–4.158	2.824	–.491	5	.644
Pair 6	LVASa - LVASb	–.833	3.656	1.493	–4.670	3.003	–.558	5	.601
Pair 7	MHSa - MHSb	16.833	5.492	2.242	11.069	22.597	7.507	5	.001
Pair 8	Moa - Mob	–1.500	3.782	1.544	–5.468	2.468	–.972	5	.376
Pair 9	Nwa - NWb	–2.333	2.733	1.116	–5.201	.534	–2.092	5	.091
Pair 10	PHSa - PHSb	13.167	8.727	3.563	4.008	22.325	3.695	5	.014
Pair 11	RWOa - RWOb	–1.167	2.858	1.167	–4.166	1.832	–1.000	5	.363
Pair 12	Sa - Sb	–3.667	4.367	1.783	–8.249	.916	–2.057	5	.095
Pair 13	VASna - VASnb	–1.667	2.251	.919	–4.029	.696	–1.814	5	.129
Pair 14	Waa - Wab	–.667	3.011	1.229	–3.827	2.493	–.542	5	.611
Pair 15	WVASa - WVASb	–2.000	2.000	.816	–4.099	.099	–2.449	5	.058

[a]Site of pain = Shoulders

TABLE 16-25 Response to the Intervention According to Site of Pain – Upper Back: Paired Samples Statistics[a]

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	ANa	8.33	3	4.163	2.404
	ANb	12.00	3	5.292	3.055
Pair 2	AVASa	4.33	3	.577	.333
	AVASb	7.00	3	2.646	1.528
Pair 3	DEPa	7.67	3	1.155	.667
	DEPb	18.00	3	1.732	1.000
Pair 4	EOLa	4.00	3	1.000	.577
	EOLb	6.67	3	2.082	1.202
Pair 5	GAa	2.33	3	.577	.333
	GAb	7.33	3	2.309	1.333
Pair 6	LVASa	2.67	3	1.155	.667
	LVASb	7.33	3	3.055	1.764
Pair 7	MHSa	58.00	3	3.606	2.082
	MHSb	40.00	3	9.165	5.292
Pair 8	Moa	3.67	3	2.082	1.202
	Mob	6.00	3	3.464	2.000
Pair 9	Nwa	2.00	3	1.000	.577
	NWb	7.67	3	1.155	.667
Pair 10	PHSa	57.00	3	3.606	2.082
	PHSb	41.67	3	10.017	5.783
Pair 11	RWOa	4.00	3	1.000	.577
	RWOb	6.33	3	1.528	.882
Pair 12	Sa	1.67	3	.577	.333
	Sb	8.67	3	1.528	.882
Pair 13	VASna	4.67	3	1.528	.882
	VASnb	7.67	3	2.309	1.333
Pair 14	Waa	2.00	3	2.000	1.155
	Wab	4.00	3	5.292	3.055
Pair 15	WVASa	6.00	3	2.000	1.155
	WVASb	8.33	3	2.082	1.202

[a]Site of pain = Upper back

TABLE 16-26 Response to the Intervention According to Site of Pain – Upper Back: Paired Samples Test[a]

		PAIRED DIFFERENCES							
					95% CONFIDENCE INTERVAL OF THE DIFFERENCE				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	ANa - ANb	–3.667	1.55	.667	–6.535	–.798	–5.500	2	.032
Pair 2	AVASa - AVASb	–2.667	3.055	1.764	–10.256	4.922	–1.512	2	.270
Pair 3	DEPa - DEPb	–10.333	1.528	.882	–14.128	–6.539	–11.717	2	.007
Pair 4	EOLa - EOLb	–2.667	3.055	1.764	–10.256	4.922	–1.512	2	.270
Pair 5	GAa - GAb	–5.000	1.732	1.000	–9.303	–.697	–5.000	2	.038
Pair 6	LVASa - LVASb	–4.667	4.163	2.404	–15.009	5.676	–1.941	2	.192
Pair 7	MHSa - MHSb	18.000	6.083	3.512	2.890	33.110	5.125	2	.036
Pair 8	Moa - Mob	–2.333	1.528	.882	–6.128	1.461	–2.646	2	.118
Pair 9	Nwa - NWb	–5.667	1.528	.882	–9.461	–1.872	–6.425	2	.023
Pair 10	PHSa - PHSb	15.333	6.506	3.756	–.829	31.496	4.082	2	.055
Pair 11	RWOa - RWOb	–2.333	2.082	1.202	–7.504	2.838	–1.941	2	.192
Pair 12	Sa - Sb	–7.000	1.000	.577	–9.484	–4.516	–12.124	2	.007
Pair 13	VASna - VASnb	–3.000	3.606	2.082	–11.957	5.957	–1.441	2	.286
Pair 14	Waa - Wab	–2.000	3.464	2.000	–10.605	6.605	–1.000	2	.423
Pair 15	WVASa - WVASb	–2.333	3.215	1.856	–10.319	5.652	–1.257	2	.336

[a]Site of pain = Upper back

TABLE 16-27 Response to the Intervention According to Site of Pain – Lower Back: Paired Samples Statistics[a]

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Ana	8.42	12	2.392	.690
	ANb	14.17	12	3.040	.878
Pair 2	AVASa	3.83	12	1.403	.405
	AVASb	5.08	12	.793	.229
Pair 3	DEPa	9.83	12	2.623	.757
	DEPb	15.33	12	3.055	.882
Pair 4	EOLa	5.33	12	1.670	.482
	EOLb	7.08	12	1.165	.336
Pair 5	GAa	4.17	12	1.899	.548
	GAb	7.00	12	.853	.246
Pair 6	LVASa	2.67	12	1.723	.497
	LVASb	5.75	12	1.215	.351
Pair 7	MHSa	61.67	12	3.798	1.096
	MHSb	46.67	12	5.758	1.662
Pair 8	Moa	4.08	12	2.065	.596
	Mob	7.75	12	.965	.279
Pair 9	Nwa	4.17	12	1.642	.474
	NWb	7.08	12	.900	.260
Pair 10	PHSa	59.08	12	5.452	1.574
	PHSb	45.50	12	6.544	1.889
Pair 11	RWOa	4.75	12	1.422	.411
	RWOb	6.42	12	.996	.288
Pair 12	Sa	2.58	12	.996	.288
	Sb	7.67	12	1.155	.333
Pair 13	VASna	5.08	12	2.503	.723
	VASnb	7.25	12	1.658	.479
Pair 14	Waa	4.75	12	2.137	.617
	Wab	8.50	12	1.314	.379
Pair 15	WVASa	4.92	12	2.151	.621
	WVASb	8.08	12	1.165	.336

[a]Site of pain = Lower back

TABLE 16-28 Response to the Intervention According to Site of Pain – Lower Back: Paired Samples Test[a]

		PAIRED DIFFERENCES							
					95% CONFIDENCE INTERVAL OF THE DIFFERENCE				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	ANa - ANb	–5.750	2.006	.579	–7.024	–4.476	–9.931	11	.000
Pair 2	AVASa - AVASb	–1.250	.965	.279	–1.863	–.637	–4.486	11	.001
Pair 3	DEPa - DEPb	–5.500	2.023	.584	–6.785	–4.215	–9.420	11	.000
Pair 4	EOLa - EOLb	–1.750	1.288	.372	–2.568	–.932	–4.706	11	.001
Pair 5	GAa - GAb	–2.833	1.586	.458	–3.841	–1.826	–6.189	11	.000
Pair 6	LVASa - LVASb	–3.083	1.564	.452	–4.077	–2.089	–6.828	11	.000
Pair 7	MHSa - MHSb	15.000	4.452	1.285	12.171	17.829	11.672	11	.000
Pair 8	Moa - Mob	–3.667	2.146	.620	–5.030	–2.303	–5.918	11	.000
Pair 9	Nwa - NWb	–2.917	1.832	.529	–4.081	–1.753	–5.515	11	.000
Pair 10	PHSa - PHSb	13.583	4.522	1.305	10.710	16.456	10.406	11	.000
Pair 11	RWOa - RWOb	–1.667	1.073	.310	–2.348	–.985	–5.380	11	.000
Pair 12	Sa - Sb	–5.083	1.443	.417	–6.000	–4.166	–12.200	11	.000
Pair 13	VASna - VASnb	–2.167	2.082	.601	–3.489	–.844	–3.606	11	.004
Pair 14	Waa - Wab	–3.750	1.913	.552	–4.965	–2.535	–6.791	11	.000
Pair 15	WVASa - WVASb	–3.167	1.992	.575	–4.433	–1.901	–5.506	11	.000

[a]Site of pain = Lower back

TABLE 16-29 Response to the Intervention According to Site of Pain – Sacroiliac Region: Paired Samples Statistics[b]

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	ANa	8.33[a]	3	.577	.333
	ANb	12.33[a]	3	.577	.333
Pair 2	AVASa	5.00	3	1.000	.577
	AVASb	5.67	3	.577	.333
Pair 3	DEPa	10.33	3	1.155	.667
	DEPb	14.00	3	1.000	.577
Pair 4	EOLa	6.00	3	3.000	1.732
	EOLb	8.00	3	1.732	1.000
Pair 5	GAa	5.33	3	1.155	.667
	GAb	6.67	3	1.155	.667
Pair 6	LVASa	4.00	3	1.000	.577
	LVASb	5.33	3	1.528	.882
Pair 7	MHSa	61.67	3	5.033	2.906
	MHSb	50.67	3	1.528	.882
Pair 8	Moa	5.33	3	1.155	.667
	Mob	6.67	3	.577	.333
Pair 9	Nwa	5.33	3	2.517	1.453
	NWb	7.00	3	1.732	1.000
Pair 10	PHSa	57.67	3	4.726	2.728
	PHSb	44.67	3	8.327	4.807
Pair 11	RWOa	5.33	3	1.155	.667
	RWOb	6.00	3	1.732	1.000
Pair 12	Sa	3.67	3	1.528	.882
	Sb	5.67	3	2.082	1.202
Pair 13	VASna	5.33	3	1.155	.667
	VASnb	6.33	3	.577	.333
Pair 14	Waa	5.33[a]	3	.577	.333
	Wab	9.33[a]	3	.577	.333
Pair 15	WVASa	5.00	3	1.000	.577
	WVASb	7.33	3	1.528	.882

[a]The correlation and t cannot be computed because the standard error of the difference is 0.
[b]Site of pain = Sacroiliac region

TABLE 16-30 Response to the Intervention According to Site of Pain = Sacroiliac Region: Paired Samples Statistics

		PAIRED DIFFERENCES							
					95% CONFIDENCE INTERVAL OF THE DIFFERENCE				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 2	AVASa - AVASb	-0.667	1.155	0.667	-3.535	2.202	-1.000	2	0.423
Pair 3	DEPa - DEPb	-3.667	2.082	1.202	-8.838	1.504	-3.051	2	0.093
Pair 4	EOLa - EOLb	-2.000	1.732	1.000	-6.303	2.303	-2.000	2	0.184
Pair 5	GAa - GAb	-1.333	2.309	1.333	-7.070	4.404	-1.000	2	0.423
Pair 6	LVASa - LVASb	-1.333	2.309	1.333	-7.070	4.404	-1.000	2	0.423
Pair 7	MHSa - MHSb	11.000	4.359	2.517	0.172	21.828	4.371	2	0.049
Pair 8	Moa - Mob	-1.333	1.528	0.882	-5.128	2.461	-1.512	2	0.270
Pair 9	Nwa - NWb	-1.667	2.887	1.667	-8.838	5.504	-1.000	2	0.423
Pair 10	PHSa - PHSb	13.000	4.583	2.646	1.616	24.384	4.914	2	0.039
Pair 11	RWOa - RWOb	-0.667	0.577	0.333	-2.101	0.768	-2.000	2	0.184
Pair 12	Sa - Sb	-2.000	1.732	1.000	-6.303	2.303	-2.000	2	0.184
Pair 13	VASna - VASnb	-1.000	1.732	1.000	-5.303	3.303	-1.000	2	0.423
Pair 15	WVASa - WVASb	-2.333	2.309	1.333	1.333	3.404	-1.75	2	0.222

TABLE 16-31 Response to the Intervention According to Site of Pain – Mix of two or more of the above: Paired Samples Statistics[a]

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Ana	9.00	15	3.229	.834
	ANb	14.33	15	4.082	1.054
Pair 2	AVASa	3.87	15	1.598	.413
	AVASb	5.27	15	1.486	.384
Pair 3	DEPa	9.73	15	3.615	.933
	DEPb	16.53	15	2.696	.696
Pair 4	EOLa	5.73	15	2.052	.530
	EOLb	7.53	15	1.598	.413
Pair 5	GAa	3.60	15	1.920	.496
	GAb	7.87	15	1.187	.307
Pair 6	LVASa	2.80	15	1.859	.480
	LVASb	6.00	15	2.070	.535
Pair 7	MHSa	56.80	15	6.581	1.699
	MHSb	43.20	15	8.825	2.279
Pair 8	Moa	4.00	15	1.964	.507
	Mob	7.60	15	1.595	.412
Pair 9	Nwa	4.20	15	2.569	.663
	NWb	7.40	15	1.549	.400
Pair 10	PHSa	56.20	15	7.984	2.061
	PHSb	40.53	15	7.298	1.884
Pair 11	RWOa	4.73	15	2.154	.556
	RWOb	7.13	15	1.885	.487
Pair 12	Sa	3.40	15	1.724	.445
	Sb	8.87	15	.743	.192
Pair 13	VASna	5.73	15	2.344	.605
	VASnb	8.00	15	1.558	.402
Pair 14	Waa	3.47	15	2.232	.576
	Wab	6.93	15	2.463	.636
Pair 15	WVASa	4.93	15	1.870	.483
	WVASb	8.20	15	1.740	.449

[a]Site of pain = Mix of two or more of the above

TABLE 16-32 Response to the Intervention According to Site of Pain – Mix of two or more of the above: Paired Samples Test[a]

		PAIRED DIFFERENCES							
					95% CONFIDENCE INTERVAL OF THE DIFFERENCE				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	ANa - ANb	−5.333	2.350	.607	−6.635	−4.032	−8.789	14	.000
Pair 2	AVASa - AVASb	−1.400	1.183	.306	−2.055	−.745	−4.583	14	.000
Pair 3	DEPa - DEPb	−6.800	2.426	.626	−8.144	−5.456	−10.856	14	.000
Pair 4	EOLa - EOLb	−1.800	1.859	.480	−2.830	−.770	−3.749	14	.002
Pair 5	GAa - GAb	−4.267	1.907	.492	−5.323	−3.210	−8.664	14	.000
Pair 6	LVASa - LVASb	−3.200	1.859	.480	−4.230	−2.170	−6.666	14	.000
Pair 7	MHSa - MHSb	13.600	5.962	1.539	10.298	16.902	8.835	14	.000
Pair 8	Moa - Mob	−3.600	2.293	.592	−4.870	−2.330	−6.081	14	.000
Pair 9	Nwa - NWb	−3.200	2.042	.527	−4.331	−2.069	−6.068	14	.000
Pair 10	PHSa - PHSb	15.667	5.394	1.393	12.680	18.654	11.249	14	.000
Pair 11	RWOa - RWOb	−2.400	1.595	.412	−3.283	−1.517	−5.829	14	.000
Pair 12	Sa - Sb	−5.467	1.407	.363	−6.246	−4.687	−15.043	14	.000
Pair 13	VASna - VASnb	−2.267	1.831	.473	−3.281	−1.253	−4.795	14	.000
Pair 14	Waa - Wab	−3.467	1.885	.487	−4.510	−2.423	−7.124	14	.000
Pair 15	WVASa - WVASb	−3.267	1.624	.419	−4.166	−2.367	−7.789	14	.000

[a]Site of pain = Mix of two or more of the above

TABLE 16-33 Comparison of '% of Changes' in Different Pain Sites in Response to the Intervention

Variable	Neck (%)	Shoulder (%)	Upper Back (%)	Lower Back (%)	Sacroiliac (%)	Mix of any of the Above (%)	% of Total Change
PHS	30.7	28.7	36.8	29.8	29.1	38.6	33
MHS	26	38.8	45	32.1	21.7	31.5	32.2
AN	36.3	41	30.5	40.5	32.4	37.2	37.9
DEP	35.9	44	57.4	35.9	26.2	41.4	40.3
VASn	44.5	21.7	39.1	29.9	15.8	28.3	39.5
LVAS	73.3	15.1	63.7	53.6	25	53.3	48.2
WVAS	66.6	25.5	28	39.2	31.8	39.8	37.6
AVAS	38.4	11.7	38.1	24.6	11.8	26.6	24.2
GA	61.9	11.4	68.2	40.5	20	54.2	44.8
NW	52.3	33.3	73.9	41.2	23.8	43.2	42.9
Mo	55.5	25	38.9	47.3	20	47.4	42.1
RWO	59.1	20	36.9	25.9	11.1	33.7	30.2
S	76.8	50	80.7	66.3	35.2	61.6	62.1
WA	64.2	18.1	50	44.1	42.9	50	44.7
EOL	59	27.7	39.9	24.7	25	23.9	28

Patients with upper back pain showed the highest improvement in mental health status, depression score, general activity, normal work and sleep (see Table 16-33).

The sleep score showed the most improvement in all patients; it ranged from 35.2% in patients with sacroiliac pain to 80.7% in patients with upper back pain, with an average of 62.1% in all patients. Although patients with mixed pain and neck pain initially had the worst sleep scores, those with upper back pain reported the greatest improvement (7 out of 10) compared with those patients in the neck and mixed pain groups (6.6 and 5.4 out of 10 respectively).

Patients suffering from mixed pain demonstrated the best improvement in the physical health score (38.6%) and their anxiety scores, which improved by 37.2%; the improvement in anxiety was also greater in patients with shoulder pain (41%) compared with other patient groups. In most of the patients with mixed pain, the lower back and/or sacroiliac areas were involved. Physical improvement is reflected as a decrease in pain affecting walking ability (3.4 out of 10 = 50%) in this category of patients, as well as in patients with low back pain and sacroiliac pain (3.7 and 4.0 out of 10, = 44.1% and 42.9%, respectively).

The effect of cupping intervention on general activity scores for different pain sites needs some explanation. The best improvement was for the patients with upper back pain (5 out of 10 = 68.2%), whereas the change in patients with shoulder pain was almost unnoticeable (11.4%). This is because for the latter patients the pain did not initially interfere with the general activity as much as for those with neck pain or mixed pain (61.9% and 54.2%, respectively); accordingly there was not the room for noticeable improvement after the intervention.

Patients with upper back pain were the most depressed of the groups (score of 18 out of 21); after the intervention they also showed the greatest improvement (10.3 out of 21 = 57.4%).

It seems that pain affects each patient's score differently, depending on the site of pain and the quality of life that the patient used to have before suffering the pain. If he or she was young and active leading a normal life and had stopped some or all activities due to pain then the suffering level would be greater and the initial scores generally higher. Following the intervention, such a patient would respond better and the scores improve more than those of the other patients.

The greatest improvements in the mood score were in the patient groups with neck, lower back and mixed pain (more than 3 out of 10 on average, and 55.5, 47.3% and 47.4%, respectively); in contrast, the shoulder and upper back pain groups did not have such bad mood scores at baseline and their improvements were insignificant (25% and 20%, respectively).

Patients with upper back pain showed the most response in normal work scores. They had an initial score similar to the other groups (7 out of 10) but they showed a much greater improvement than the others (5.6 out of 10 = 73.9%).

Patients with lower back pain and mixed pain initially reported the worst mood scores (7.7 and 7.6 out of 10, respectively); after the intervention they responded very well and their scores improved by 47.3% and 47.4%, respectively.

In conclusion, all patients responded well to the intervention and this was reflected in all the scores as an improvement of more than 30%. The two exceptions were the average VAS (24.2%) and pain affecting enjoyment of life (28%). The simple explanation for this is that in most cases the average VAS is usually around the same or shows little difference, hence when statistical analysis is applied the percentage is small. Even so, the average VAS score was above average before the intervention (5.36 out of 10), but was below average after the intervention (4.05 out of 10) (see Table 16-33).

Overall Changes in PRN Medication per Week

In Table 16-34, the amount of PRN medication initially reported by all patients was 58.8 painkillers on average per patient per week: 50.8 for male patients and 71.7 for female patients. The highest consumption per week amongst the male patients was 76 tablets, whereas it was 116 tablets for the females. The lowest consumption was nil for both genders.

After the intervention, the average consumption per patient per week was 53.7 tablets (56.2% improvement). The average consumption for male patients was 22.7 tablets (55.4% improvement) whereas for females it was 31 tablets per week (56.8% improvement), thus giving an overall improvement of 55.9%.

What About Patients who Reported Deterioration in Pain Scores?

Only one male patient (number 20) reported deterioration in pain scores after the intervention, but noticeably his PRN medication had decreased during the same period by almost 50%. Anxiety and depression scores had also decreased by around 50%. His physical and mental health status showed a good improvement, from 37 to 58 and from 34 to 59 (out of 70) respectively. In the meantime, he carried on receiving cupping for 3 months after the intervention and his scores become as good as the rest of the group. So was this a delayed response? Or had the patient deliberately made the VAS score high for some reason (e.g. financial gain)? This idea is supported by the fact that his improved mental and physical health status was scored on the SF36 questionnaire, which uses indirect questions – unlike the BPI questionnaire, which uses direct questions!

Any Significant Events?

The patients did not report any important events during the intervention, and all the recorded events submitted to the study group revealed nothing of any significance. Possibly those events represented a big change to the individual patient who was able to perform a task that was not possible in the past, but nevertheless did not increase their painkiller consumption, nor did such events reflect badly on their overall scores.

Follow-up After 3, 6 and 9 Months

Twenty-six patients replied to the follow-up letter after a further 3 months; 12 of them were still having cupping on a regular basis. Six months after the end of the intervention, 16 patients replied of whom 5 were still using cupping. After 9 months, 9 patients further reported their scores, of whom 2 were still using cupping. Overall their improvement was reported as steady.

Those patients who did not continue using cupping did not specify an exact reason; most stated that they did not feel that they needed to maintain the treatment, as their condition was stable, while a few stated that they had forgotten about it! However, they all agreed that they would continue the therapy in the future if they felt the need to do so. Noticeably, however, those patients who did not continue

TABLE 16-34 Changes of PRN Medication Per Week Due to the Intervention

	Total Male's Consumption Tablets Per Week	Average Male's Consumption Tablets Per Week	Total Female's Consumption Tablets Per Week	Average Female's Consumption Tablets Per Week	Total All Patients Tablets Per Week	Average Per Patients Tablets Per Week
Before	1321	50.8	1147	71.7	2468	58.8
After	591	22.7	497	31.1	1088	25.9
% of improvement	55.3	55.3	56.7	56.7	55.9	55.9

TABLE 16-35 Have we met the Standards?

Standards Agreed	Achieved
Improvement in quality of life by 30% or more in at least 50% of patients, in whom their scores were 'average' or lower, represented by SF36 questionnaire	***SF36*:** Physical health score (PHS) = 33% Mental health score (MHS) = 32.2% In all patients
Improvement in anxiety and depression by 30% or more in at least 50% of patients, in whom their scores were 'average' or higher, represented by the Hospital Anxiety and Depression Score (HADS)	***HADS:*** Anxiety = 37.9% Depression = 40.3% In all patients
Improvement in pain score by 30% or more in at least 50% of patients, in whom their scores were 'average' or higher represented by Visual Analogue Score (VAS)	***VAS*** now = 39.5% In all patients
Improvement in the degree of interference of pain in various aspects of daily life by 30% or more in at least 50% of patients, in whom their scores were 'average' or higher, represented by the Brief Pain Inventory Score (BPI)	***BPI:*** General activity = 44.8% Normal work = 42.9% Mood = 42.1% Relations with others = 30.2% Sleep = 62.1% Walking ability = 44.7% Enjoyment with life = 28% In all patients
Decrease the rescue (PRN) medication required by 30% or more in at least 50% of patients	***PRN medication:*** Decreased by 56.2% In all patients

using cupping on a regular or as-required basis nevertheless reported a steady improvement in almost all scores. They also reported less PRN pain medication consumption compared with their requirement before commencing cupping treatment. Their scores were slightly higher than those immediately after the 10-week intervention.

Meanwhile, patients who continued using cupping on a regular or as-required basis stated that they continued using it because: (i) it made them 'feel better', or (ii) they 'were worried that the pain might come back', or (iii) they felt that they 'needed it as the pain was just starting again'. These statements are reflected in the scores the patients have reported and also in the PRN pain medications required: both have shown a slight increase in the overall scores after the 10 weeks of cupping – although they were still lower than the baseline scores.

Further Comments

Most, if not all, of the patients enjoyed the feeling of suction created by cupping. None of them complained of pain or discomfort due to the technique either during or after any session.

Have we Met the Agreed Standards?

Standards agreed upon and those achieved are compared in Table 16-35.

CONCLUSION

There is no stand-alone scoring system as a measure for the degree of pain or its influence on the patient's physical, mental or social status; this was always the challenge facing the chronic pain clinicians. To find an intervention or technique that proves useful in most aspects of a patient's life would be rather a dream, not a fact. Use of cupping (Dry, Sliding) technique to improve the condition of chronic myofascial pain syndrome has, however, shown promising results. The results obtained from this simple study suggest that cupping could have a place in the management of this condition. The improvement achieved by using cupping was actually higher than the standards originally agreed before the intervention (see Table 16-35). In fact, this improvement has been achieved whilst the consumption of PRN medication has decreased, which is another point in its favour.

If to this is added the simple fact that cupping is safe, non-painful, can be taught to and applied by non-medical professionals (relatives or friends) and can be used in the comfort of the patient's own home, it is then worth considering that this technique has a place in our practice.

It is well known amongst TCM practitioners that Wet cupping is more beneficial than the Dry technique. Wet cupping removes stagnant Blood from the body whereas the Dry technique moves it and frees the channels within the body. As the results of this study were achieved by using Dry cupping, it would be of interest to find out the magnitude of the effect of Wet cupping on the same patient groups. Nevertheless, additional prospective studies are needed to quantify the effectiveness of both Dry and Wet cupping and compare them with established Western approaches. Forthcoming studies should also critically analyse the costs of providing these techniques, to evaluate the financial benefits of the different interventions available.

(See also the Further Reading section at the end of the chapter for relevant studies and texts on myofascial pain syndrome.)

Research Study 4 A Systematic Literature Review of Clinical Evidence-Based Research

Hui-juan Cao / Jian-ping Liu

ABSTRACT

Background. Though cupping therapy has been used in China for thousands of years, there has been no systematic summary of clinical research on it. This review evaluates the therapeutic effect of cupping therapy using an evidence-based approach based on available clinical studies.

Methods. We included all clinical studies on cupping therapy for all kinds of diseases. We searched six electronic databases; all searches ended in December 2011. We extracted data on the type of cupping and type of diseases treated.

Results. 725 clinical studies published between 1958 and 2011 were identified, including 163 randomized controlled trials (RCTs), 30 clinical controlled trials, 419 case series, and 113 case reports. The number of RCTs has obviously increased during the last decades, but the quality of the RCTs has generally been poor, according to the risk of bias of the Cochrane standard for important outcomes within trials. The diseases in which cupping was commonly employed included herpes zoster, pain conditions, facial paralysis, etc. The meta-analysis showed that cupping therapy combined with other TCM treatments was significantly superior to other treatments alone in increasing the number of patients cured who were suffering from herpes zoster, facial paralysis, acne, cervical spondylosis, and prolapse of lumbar intervertebral disc. Wet cupping was used in the majority of studies, followed by Retained cupping, Moving cupping, Medicinal cupping, etc. No serious adverse effects were reported in the studies.

Conclusions. According to the above results, the quality and quantity of RCTs on cupping therapy in China appears to have improved over the past 50 years, and majority of studies show potential benefit on pain conditions, herpes zoster and other diseases. However, further rigorously designed trials in relevant conditions are warranted to support their use in practice.

INTRODUCTION

As was discussed in the early chapters of this book, cupping has been widely used in Chinese folk medicine, and the technique has been inherited by modern Chinese practitioners. In the 1950s, the clinical effect of cupping was confirmed by further research in China and acupuncturists from the former Soviet Union, and was established as an official therapeutic practice in hospitals all over the country. This activity substantially stimulated the development of further research into cupping.

As the process of systematically detecting, appraising and using contemporary research findings as the basis for clinical decision making, evidence-based medicine has been widely used in the health service and has served as a basis for achieving evidence-based practice in traditional medicine.[1]

Systematic review of well-designed randomized controlled trials is considered to be the top level of evidence. Five systematic reviews[2–6] on cupping therapy have so far been published, focusing respectively on pain conditions, stroke rehabilitation, hypertension and herpes zoster. The numbers of trials included in these reviews were quite small (between 1 and 8). Lee et al (2011)[7] conducted an

overview of these five reviews and concluded that cupping is effective only as a treatment for pain, and even for this indication there are remaining doubts. Extensive searches did not find any further related reviews.

In the context of evidence-based medicine, we therefore need to evaluate therapeutic effect of cupping therapy by summarizing all available clinical evidence to inform this ancient practice.

METHODS

Objective

To evaluate the therapeutic effect of cupping therapy using an evidence-based approach on all available clinical studies.

Information Sources

We searched the China Network Knowledge Infrastructure (CNKI) (1911–1978, 1979–2011), Chinese Scientific Journal Database VIP (1989–2011), Wan Fang Database (1985–2011), Chinese Biomedicine (CBM) (1978–2011), PubMed (1966–2011) and the Cochrane Library (Issue 10, 2011), all the searches ended at December 2011. The search terms included 'cupping therapy', 'bleeding cupping', 'wet cupping', 'dry cupping', 'flash cupping', 'herbal cupping', 'moving cupping' or 'retained cupping'.

Selection Criteria

Any type of clinical studies were included – that is, randomized controlled trials (RCTs), clinical controlled trials (CCTs), case series (CSs), and case reports (CRs) identifying the therapeutic effect of cupping therapy, including one or more than two types of cupping methods, compared with no treatment, placebo or conventional medication. Combined therapy with cupping and other interventions compared with other interventions alone were also included. Cupping therapy combined with other TCM therapies (including acupuncture) compared with non-TCM therapies was excluded. There was no limitation on language and publication type. Multiple publications reporting the same patient data were excluded.

Data Extraction and Quality Assessment

The extracted data included authors and title of study, year of publication, study design (detail of randomization if the study was an RCT), type of disease, study size, age and sex of participants, type of cupping therapy, treatment process, detail of the control interventions, outcome (e.g. total effective rate) and adverse effect for each study. All data were extracted from the published studies.

Evidence from RCTs is considered as gold standard for therapeutic evaluation; we specifically evaluate the methodological quality of RCTs in this review. This assessment of methodological quality was carried out using criteria from the *Cochrane Reviewers' Handbook*.[8] We assessed studies according to the risk of bias for each important outcome within included trials, including adequacy of generation of the allocation sequence, allocation concealment, blinding and outcome reporting. The quality of all the included trials was categorized into low/unclear/high risk of bias. Trials that met all criteria were categorized to low risk of bias, trials that met none of the criteria were categorized to high risk of bias, and other trials were categorized to unclear risk of bias if insufficient information to make a judgement was acquired.

Data Analysis and Statistical Methods

Data were extracted using Microsoft Access, and all the information and data were transferred into Excel worksheet form for frequency calculation. The numbers of studies on cupping therapy were summarized by study type and publication date. The constituent ratio of types of cupping therapy and mapping of top 20 diseases/conditions treated by cupping therapy were reported. For RCTs, outcome data were summarized as risk ratios (RR) with 95% confidence intervals (CI) for binary outcomes, or mean difference (MD) with 95% CI for continuous outcomes. Revman5.0.20 software was used for data analysis. Meta-analysis was used to estimate the therapeutic effect of cupping therapy if the trials had a good homogeneity of study design, participants, interventions, control, and outcome measures. Publication bias was explored by funnel plot analysis.

RESULTS

Basic Information about Studies

After primary searches in six databases, 8328 citations were identified, of which the majority was excluded because of obvious ineligibility after reading the title/abstract; the full-text papers of 725 studies were then retrieved. All of these final 725 studies were included in this review, comprising 719 studies published in Chinese and 6 studies published in English (Fig. 16-2**).** All the included studies were published between 1958 and 2011, including 163 RCTs,[9–171] 30 CCTs, 419 CSs, and 113 CRs; 584 of these studies (80.55%) were published between 1994 and 2011, and the number of studies has obviously increased over the course of five decades (Fig. 16-3). The first RCT was published in 1993 and over half of them were reported between 2009 and 2011.

Amongst the included studies, 435 (59.72%) used Bleeding cupping as the main intervention, 130 (17.93%) used Retained cupping, 51 (7.17%) used Moving cupping, 34 studies (4.69%) used Medicinal cupping, 18 (2.34%) used Flash cupping, 5 (0.69%) used Water cupping, and 3 (0.41%) used Needle cupping; combined cupping that used at least two types of cupping method was used in 52 studies (7.03%) (Fig. 16-4).

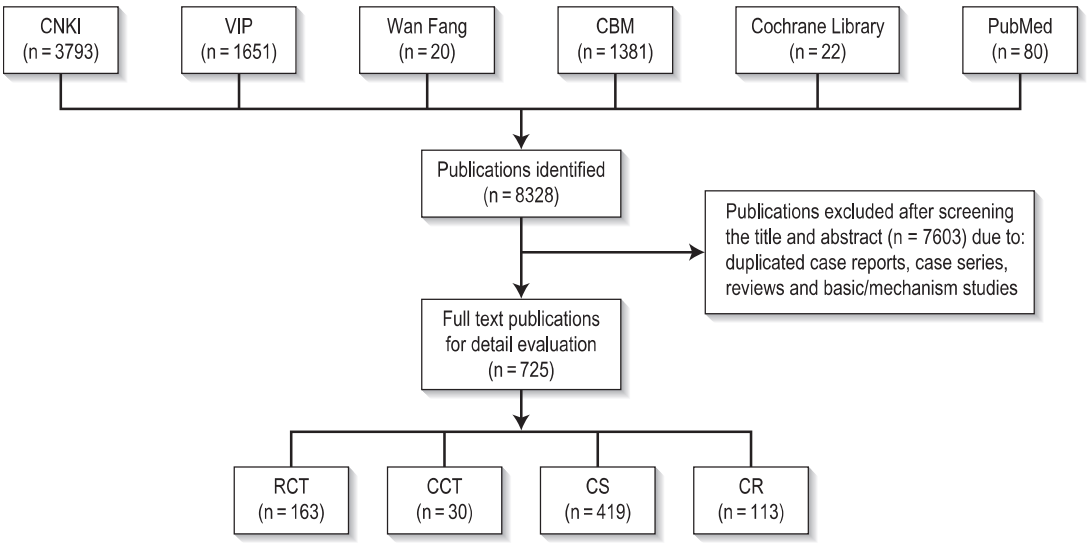
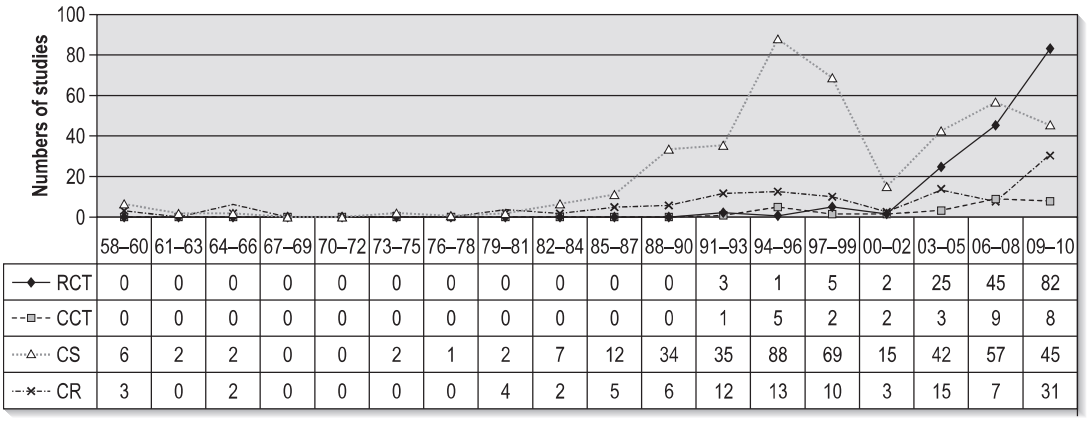


FIGURE 16-2 The process of study selection.



	58–60	61–63	64–66	67–69	70–72	73–75	76–78	79–81	82–84	85–87	88–90	91–93	94–96	97–99	00–02	03–05	06–08	09–10
RCT	0	0	0	0	0	0	0	0	0	0	0	3	1	5	2	25	45	82
CCT	0	0	0	0	0	0	0	0	0	0	0	1	5	2	2	3	9	8
CS	6	2	2	0	0	2	1	2	7	12	34	35	88	69	15	42	57	45
CR	3	0	2	0	0	0	0	4	2	5	6	12	13	10	3	15	7	31

RCT: randomised controlled trial; CCT: clinical controlled trial; CS: case studies; CR: case report

FIGURE 16-3 Numbers of studies on cupping therapy by study type between 1958 and 2011.

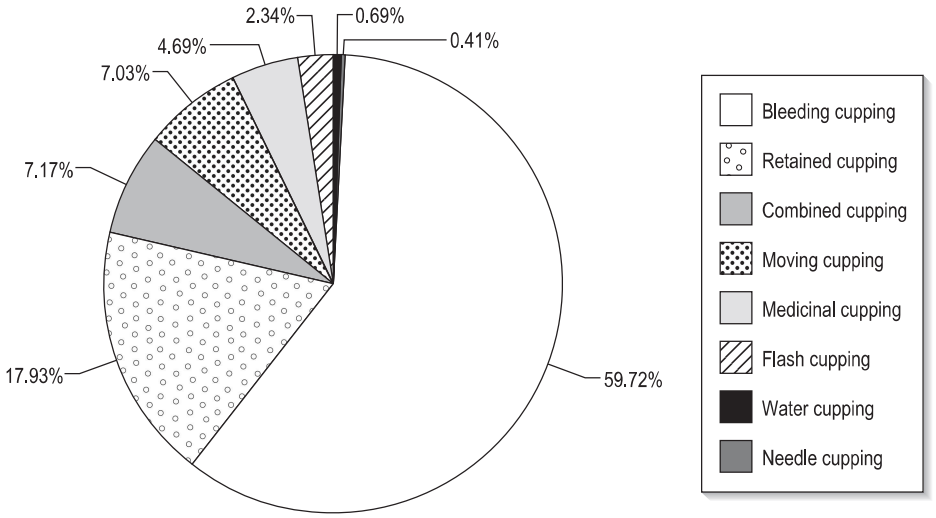


FIGURE 16-4 Constituent ratio of types of cupping therapy.

More than 50 kinds of diseases or symptoms were treated by cupping therapy, according to the included studies. The top 20 diseases/conditions in which cupping was commonly employed were herpes zoster (84 studies), pain conditions (including prolapse of lumbar intervertebral disc, non-specific lower back pain, etc. [62 studies]), cough or asthma (50 studies), acne (37 studies), facial paralysis (29 studies), common cold (24 studies), cervical spondylosis (22 studies), lateral femoral cutaneous neuritis (19 studies), lumbar sprain (18 studies), scapulohumeral periarthritis (18 studies), urticaria (13 studies), mastitis (11 studies), headache (11 studies), soft tissue injury (10 studies), arthritis (10 studies), neurodermatitis (8 studies), myofascitis (8 studies), wound and sinus (7 studies), Bi syndrome (Wind, Cold and Dampness invading the body [which is caused by changeable climate and alternate cold and heat, dwelling in damp places, wading or being caught in the rain] and lingering in channels and joints resulting in stagnation of Qi and Blood [6 studies]) and sciatica (5 studies). A further 273 studies were concerned with other diseases treated by cupping therapy (see Table 16-36, in Appendix).

Meta-analyses were conducted on five diseases/conditions: herpes zoster, facial paralysis (Bell's palsy), acne, cervical spondylosis and prolapse of lumbar intervertebral disc. (Characteristics of the RCTs involving these diseases are presented in Tables 16-37 to 16-41, in Appendix.) Due to the insufficient number of included trials and heterogeneity of the relevant RCTs of the remaining 15 diseases/conditions, meta-analyses could not be completed.

Methodological Quality of RCTs

According to our predefined quality criteria, all of the 163 included trials were evaluated as 'high risk of bias' (see Table 16-42, in Appendix). Six of the trials reported sample size calculation, including 3 that were pilot studies. Thirty-five trials described randomization procedures (such as random number table or computer-generated random numbers), but only 6 of them reported methods of allocation concealment (including envelope and central randomization). Four trials[14,53,109,116] mentioned blinding, of which only 2[53,109] reported that they blinded outcome assessors; the other two trials did not report who was blinded. Seven trials[9,41,51,84,93,135,136] reported the number of dropouts, but none of these used intention-to-treat analysis.

There were 124 (76.07%) trials that reported comparability of baseline data, 54 (33.13%) trials specified the inclusion criteria, 52 (31.90%) trials specified the exclusion criteria, and 124 (76.07%) trials described diagnostic criteria. The efficacy standard was reported in 154 (94.51%) trials, but 130 of these used composite outcome measures, which categorized treatment efficacy into four grades (cured, markedly effective, effective, and ineffective) according to changes in symptoms; the other 24 trials used a single outcome measure for therapeutic effect. Symptom changes were commonly used as outcome measures.

Estimated Effects of RCTs with Cupping

Due to the insufficient number of RCTs and the variations in study quality, participants, intervention, variable control, and outcome measures, the results of most of the studies could not be synthesized by quantitative methods. Although 161 of the 163 included studies showed that cupping therapy, as well as cupping combined with another treatment, was significantly effective for certain diseases (see Table 16-43, in Appendix), interpretation of the positive findings from these individual studies needs to be incorporated with the clinical characteristics of the included studies and the evidence power. Therefore, the reported beneficial effects of cupping therapy need to be confirmed by large and rigorously designed RCTs. In this study we conducted meta-analyses to evaluate therapeutic effect of cupping therapies only for herpes zoster, facial paralysis, acne, cervical spondylosis and prolapse of lumbar intervertebral disc (see Table 16-41).

Estimated Effects of RCTs with Cupping for Herpes Zoster

In a meta-analysis of 22 RCTs to evaluate the efficacy of Wet cupping therapy for herpes zoster, Wet cupping was found to be superior to pharmaceutical medications, such as antivirals, in effecting a cure (RR 2.05, 95%CI 1.80 to 2.34, $p<0.00001$, 7 trials, $I^2=22\%$, fixed model) (Fig. 16-5), and in lowering the incidence rate of post-herpetic neuralgia (RR 0.12, 95%CI 0.06 to 0.28, $p<0.00001$, 4 trials, $I^2=0\%$, fixed model).[18,20,29,32,35,39,45,48,68,70–72,78,88,92,95,109,120,121,143,148,169] Eight trials reported the number of patients with improved symptoms; five of them showed Wet cupping to be better than medication on this outcome, though the application of meta-analysis was inadequate due to heterogeneity of these trials ($I^2=91\%$). Wet cupping in combination with pharmaceutical medication was significantly better than medication alone in effecting a cure (RR 1.64, 95%CI 1.27 to 2.13, $p=0.0002$, 7 trials, $I^2=78\%$, random model), but no difference in symptom improvement was observed (RR 1.03, 95%CI 0.98 to 1.08, $p=0.30$, 5 trials, $I^2=66\%$, random model) (Fig. 16-6). Wet cupping combined with acupuncture was superior to acupuncture alone, both in effecting a cure (RR 1.65, 95%CI 1.08 to 2.53, $p=0.02$, 3 trials, $I^2=49\%$, random model) and in improving symptoms (RR 1.13, 95%CI 1.01 to 1.26, $p=0.02$, 3 trials, $I^2=0\%$, fixed model). Four trials reported the average cure time as an outcome; the meta-analysis showed Wet cupping used singly (MD –0.69, 95%CI –1.08 to –0.30, $p=0.0006$, 2 trials, $I^2=0\%$, fixed

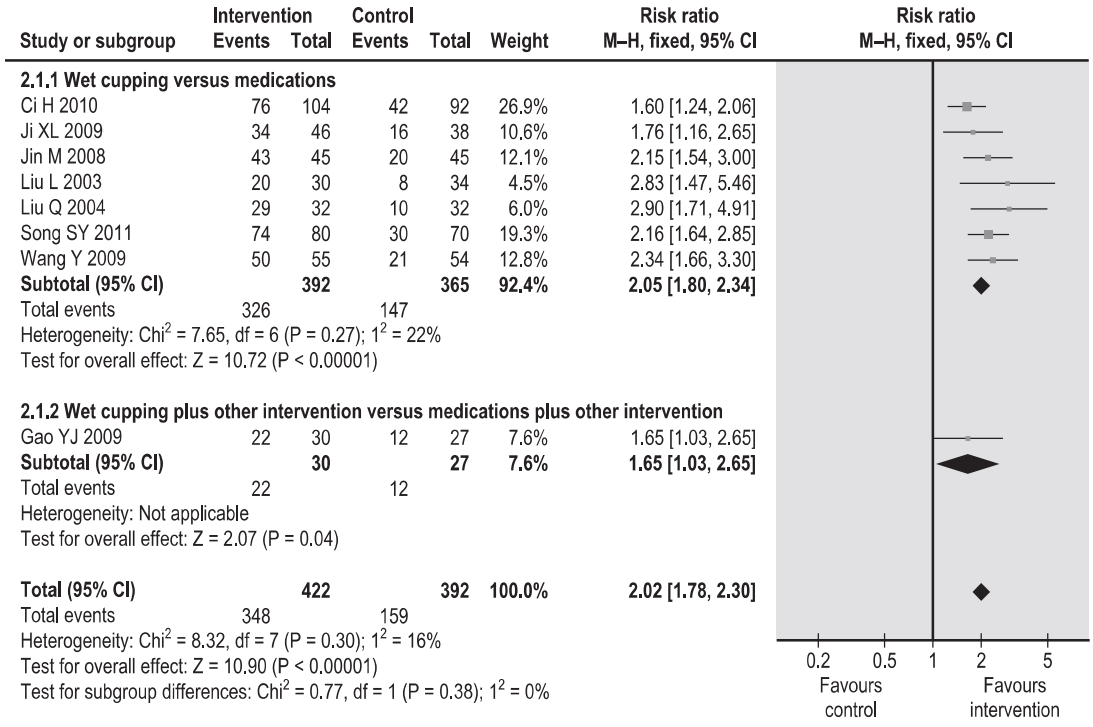


FIGURE 16-5 Effect of estimates of Wet cupping versus medication on numbers of cured patients with herpes zoster.

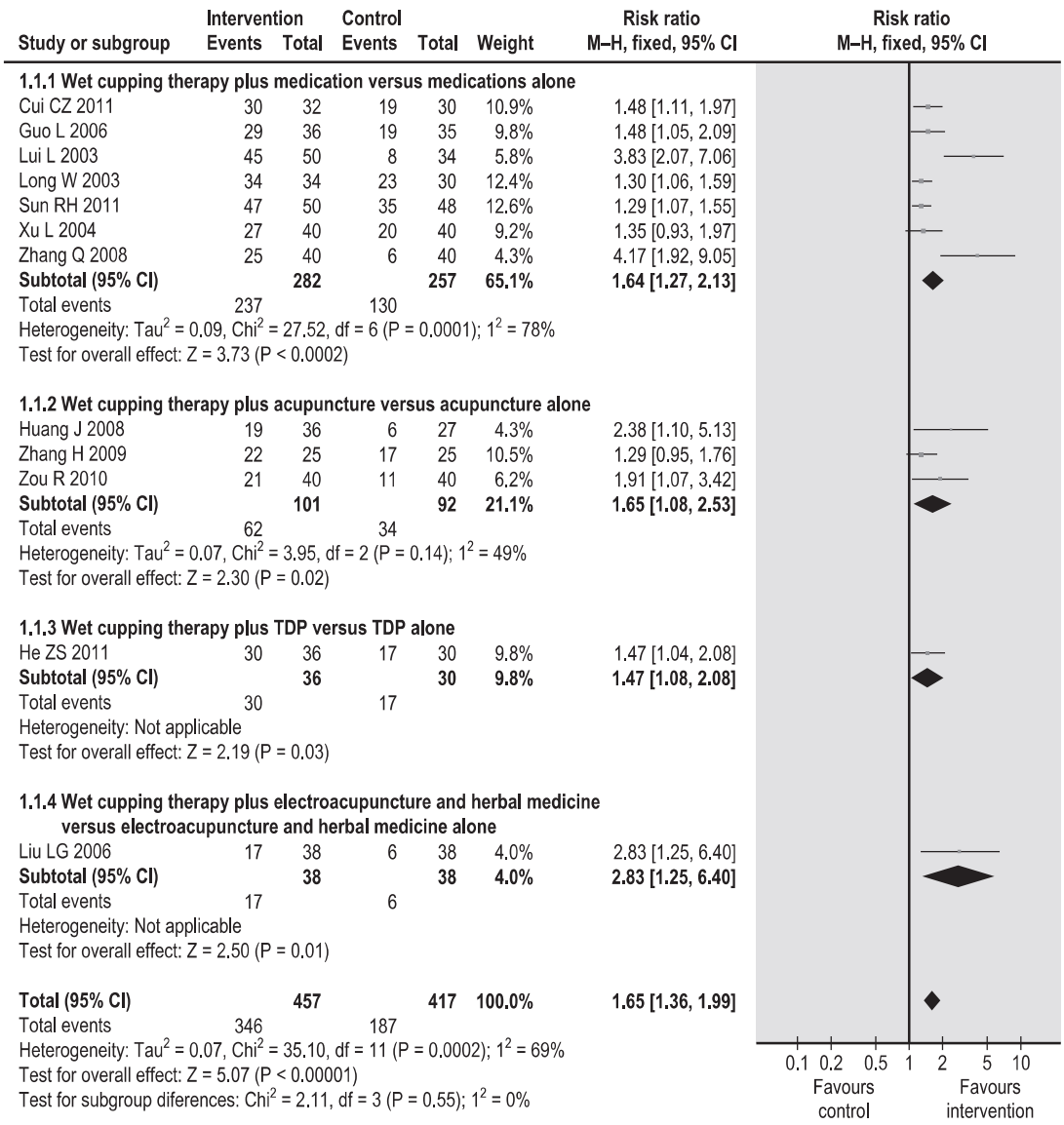


FIGURE 16-6 Effect of estimates of Wet cupping plus other interventions versus other interventions alone on numbers of cured patients with herpes zoster.

model) or combined with medication (MD –3.30, 95%CI –6.16 to –0.43, $p = 0.02$, 2 trials, $I^2 = 68\%$, random model) was better than medication alone in reducing average time to cure.

Estimated Effects of RCTs with Cupping for Facial Paralysis

There were 19 RCTs that assessed the therapeutic effect of cupping therapy for facial paralysis.[25,28,41,42,52,55–57,66,80,82,87–89,93,104,155,163,171] Two of these trials[51,56] were excluded from the meta-analysis owing to the non-comparability of their treatment and control groups. Six trials used Flash cupping therapy, 10 trials used Wet cupping, and 1 trial used Medicinal cupping as the main intervention. The meta-analysis showed Flash cupping combined with acupuncture (RR 1.42, 95%CI 1.23 to 1.65, $p < 0.00001$, 5 trials, $I^2 = 0\%$, fixed model) and Wet cupping combined with acupuncture (RR 1.56, 95%CI 1.34 to 1.83, $p < 0.00001$, 8 trials, $I^2 = 0\%$, fixed model) were markedly better than acupuncture alone in effecting a cure (Fig. 16-7). In addition, cupping in combination with medication (such as neurotrophic drugs) was superior to medication alone in reducing the average time to cure (MD –6.05, 95%CI –9.83 to –2.27, $p = 0.002$, 2 trials, random model).

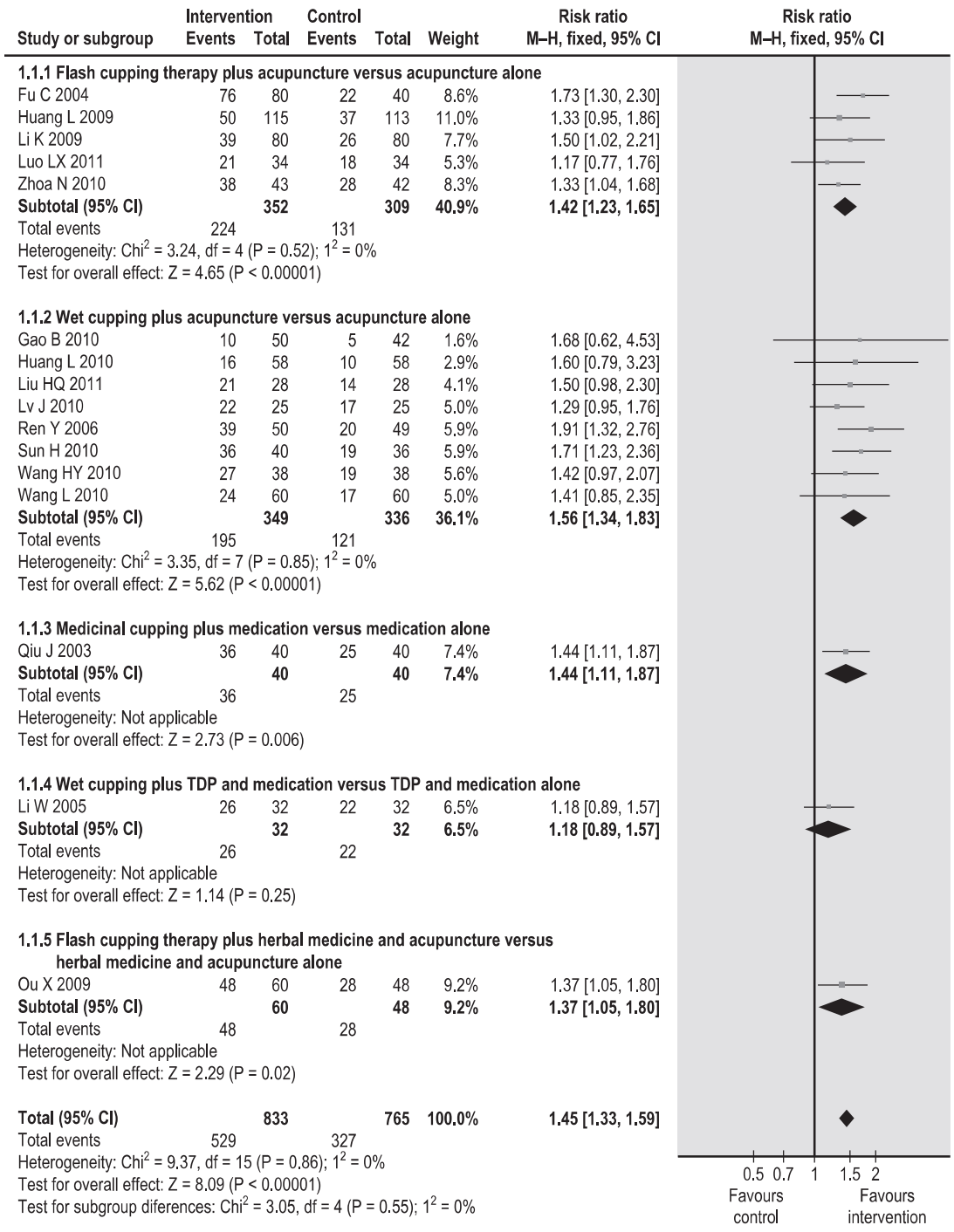


FIGURE 16-7 Effect of estimates of cupping combined with other interventions versus other interventions alone on numbers of cured patients with facial paralysis (Bell's palsy).

Estimated Effects of RCTs with Cupping for Cervical Spondylosis

Eight trials evaluated the efficacy of cupping therapy for cervical spondylosis.[15,91,101,105,108,134,138,167] Cupping therapy, especially Wet cupping on Du-14 and Ashi points, combined with other treatment including acupuncture and traction, was better than other treatments alone in effecting a cure (RR 1.69, 95%CI 1.36 to 2.08, $p < 0.00001$, 7 trials, $I^2 = 39\%$, random model) (Fig. 16-8) and in ameliorating symptoms (RR 1.14, 95%CI 1.07 to 1.22, $p < 0.0001$, 8 trials, $I^2 = 37\%$, fixed model). One trial[138] compared Wet cupping with flunarizine for symptom improvement, and found no difference between the two groups (RR 1.18, 95%CI 0.60 to 2.32, $p = 0.63$, 1 trial).

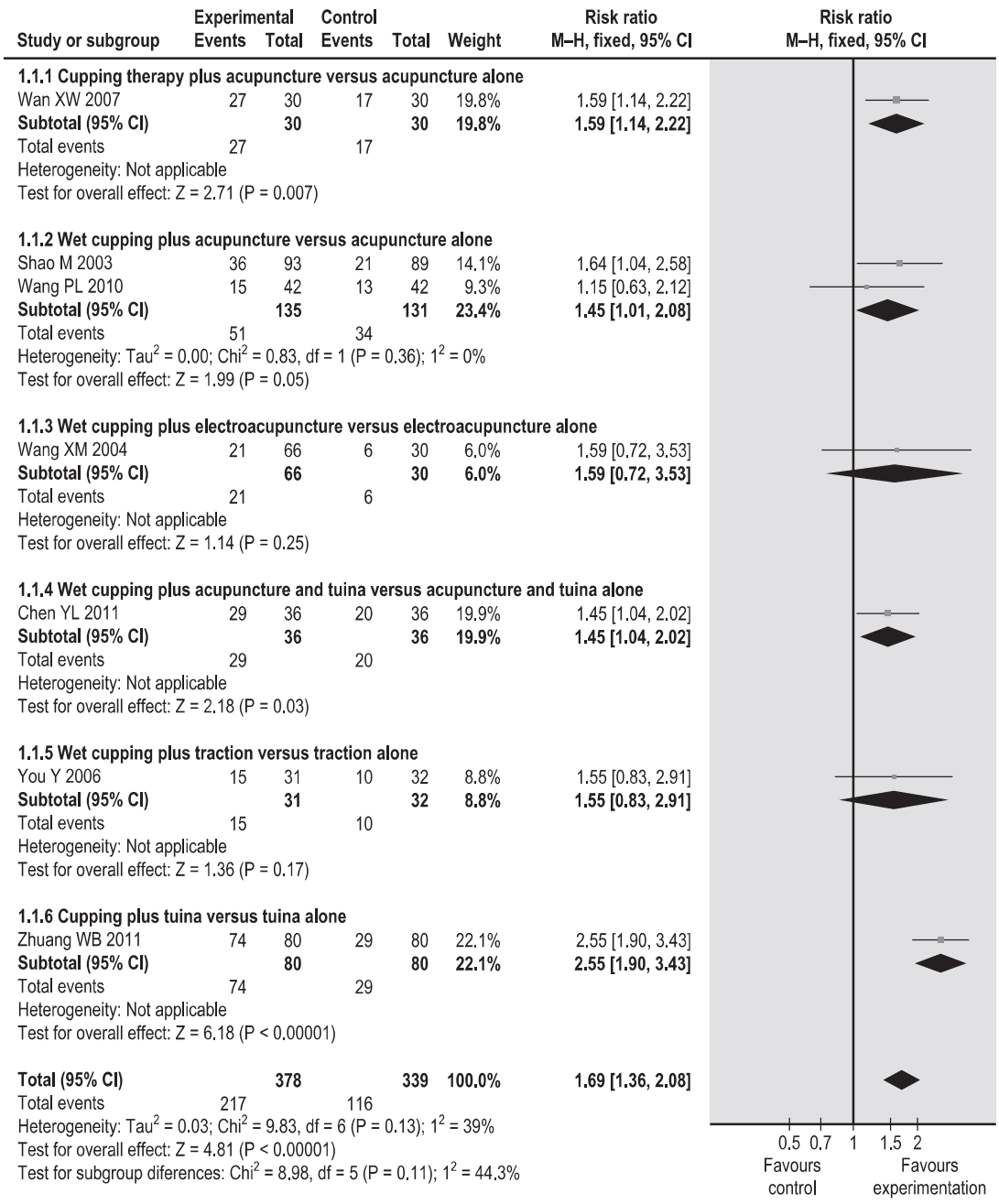


FIGURE 16-8 Effect of estimates of cupping combined with other interventions versus other interventions alone on numbers of cured patients with cervical spondylosis.

Estimated Effects of RCTs with Cupping for Acne

Seven trials evaluated the efficacy of cupping therapy for acne[36,40,65,106,111,113,147]. The meta-analysis showed that, for improving the cure rate, Wet cupping therapy was significantly better than medication such as tanshinone, tetracycline and ketokonazole (RR 2.07, 95%CI 1.22 to 3.52, $p=0.007$, 3 trials, $I^2=37\%$, random model) (Fig. 16-9). Furthermore, cupping therapy combined with other interventions was superior to other interventions alone (RR 1.88, 95%CI 1.40 to 2.52, $p<0.0001$, 4 trials, $I^2=0\%$, fixed model).

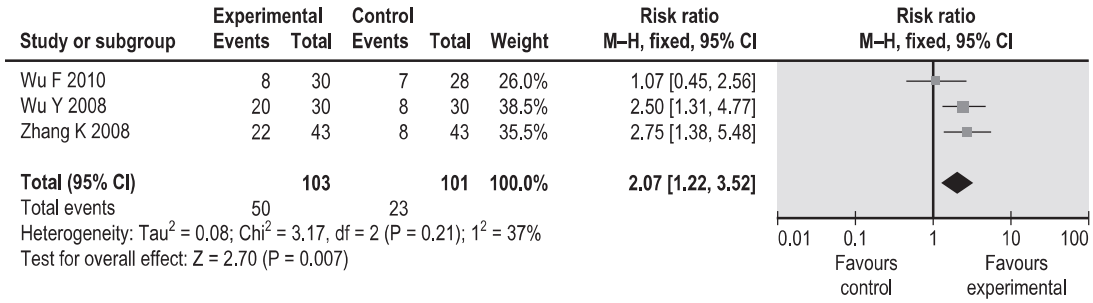


FIGURE 16-9 Effect of estimates of cupping therapy versus medication on numbers of cured patients with acne.

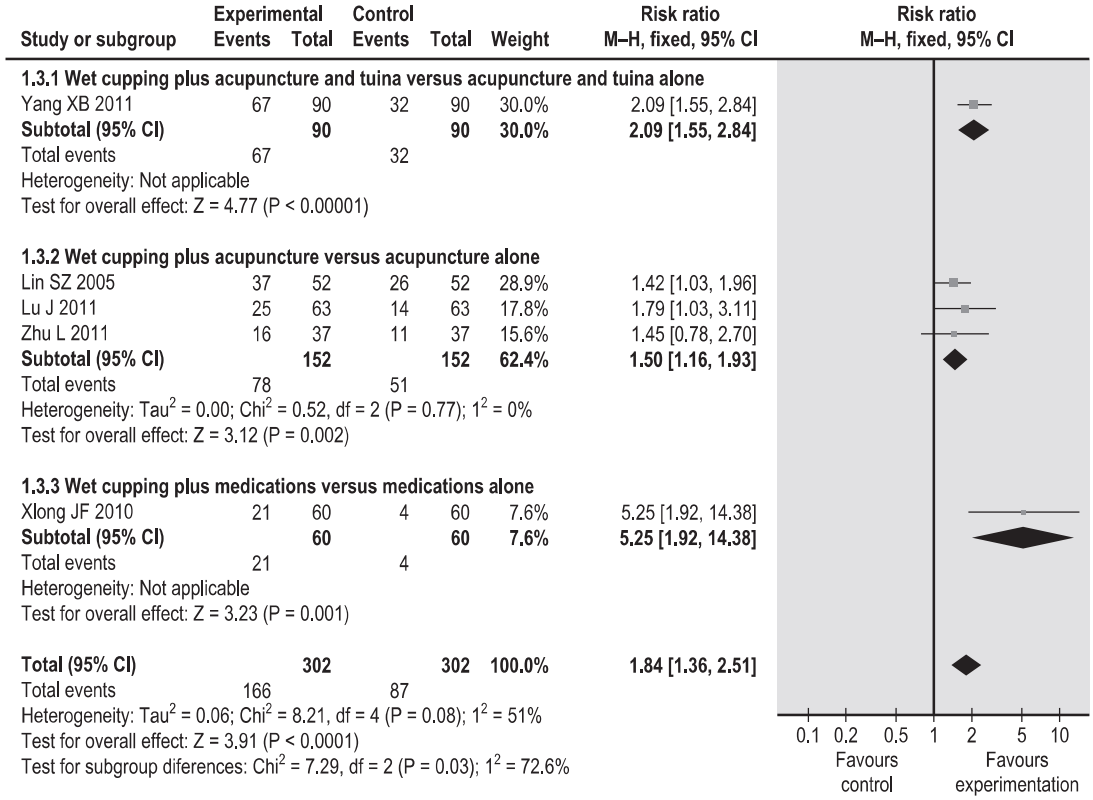


FIGURE 16-10 Effect of estimates of cupping combined with other interventions versus other interventions alone on numbers of cured patients with lumbar disc herniation.

Estimated Effects of RCTs with Cupping for Prolapse of Lumbar Intervertebral Disc

Five trials evaluated the efficacy of cupping therapy for lumbar disc herniation.[62,76,118,130,164] The meta-analysis showed that cupping therapy combined with other interventions was superior to other interventions alone (RR 1.84, 95%CI 1.36 to 2.51, $p<0.0001$, 5 trials, $I^2=51\%$, random model) for improving the cure rate (Fig. 16-10).

Funnel Plot Analysis

A funnel plot analysis of 39 trials was performed to examine outcomes for the number of cured patients irrespective of disease; the result showed potential asymmetry (Fig. 16-11).

Adverse Events

No serious adverse effects were reported in any of the 163 included trials.

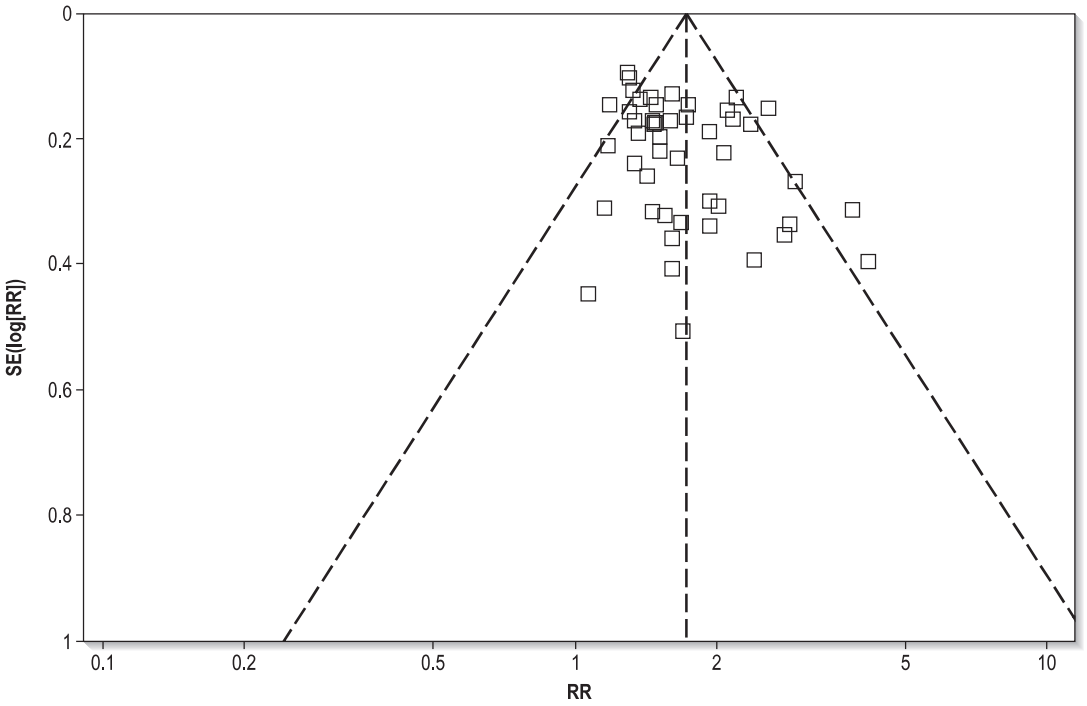


FIGURE 16-11 Funnel plot assessing outcomes of cured patients reported in 49 randomized controlled trials on five diseases.

DISCUSSION

According to our findings, clinical studies on cupping therapy have obviously improved in either number or quality during the last 50 years. Although the methodological quality of the included RCTs was generally poor, the inclusion of certain items of information – such as the number of the RCTs that reported the sequence generation of randomization – indicated that it has improved during the last 10 years (see Table 16-36, in Appendix). Cupping therapy may have an effect in several conditions, especially when such therapy is combined with another treatment (although only poor quality, provisional evidence could be provided by this systematic review). The long-term effect of cupping therapy is not known, but use of cupping is generally considered safe, based on long-term clinical use and reports from the reviewed clinical trials.

All these trials leave much scope for trials that are well designed, conducted and reported. We have included 163 RCTs in this review, but the majority of these had a high risk of bias. According to the Consolidated Standards of Reporting Trials (CONSORT Group, 2001),[172] the randomization methods need to be clearly described and fully reported. Although double blinding is always a big challenge for the manual healing therapies such as acupuncture, massage and cupping therapy, a sham cupping device was recently developed by introducing a small hole in the cup to reduce the negative pressure after suction, so that the pressure inside could not be maintained. A pilot RCT[173] conducted to testify the validity of this sham control method (Lee et al, 2010) found this new sham cupping device seemed to provide a credible control for real cupping therapy by producing little or no negative pressure, but more rigorous research was warranted regarding its use.

Although blinding of cupping therapy might be very difficult, blinding of outcome assessors and statistics should be attempted as much as possible to minimize performance and assessment biases. Sample size calculation and analysis of outcomes based on intention-to-treat principle are important. Also, as cupping therapy, like acupuncture, is a treatment using meridians and acupoints, researchers may refer to the *Revised STandards for Reporting Interventions in Clinical Trials of Acupuncture* (STRICTA) report[174] – therefore, details of the cupping treatment should be reported, such as the type of cups, experience of the practitioners, period and frequency of the treatment.

As we have mentioned, 79.75% of the included trials used a composite outcome measure that categorized the effect of the treatment into four grades. The classification of 'cure', 'markedly effective', 'effective' or 'ineffective' is not internationally recognized, however, making it hard to interpret the

treatment effect, and this may increase the clinical heterogeneity within such categories. We suggest that future trials chose and comply with international standards in the evaluation of treatment effect.

We have also conducted an overall funnel plot test to examine whether the association between the effect of cupping therapy and the standard error of this effect (a measure of study size) is greater than might be expected to occur by chance. The funnel plot of 49 RCTs for the outcome of number of cured patients of five diseases showed potential asymmetry (see Fig. 16-11). The funnel plot asymmetry may be caused by publication bias, small study effects or even heterogeneity in intervention effects. For the asymmetric funnel plot in our meta-analysis, it seemed that the asymmetry was most probably caused by the small study sample sizes. However, as we didn't include the unpublished studies, there was also high potential that our review might have a publication bias. We strongly suggest that researchers should calculate sample sizes for randomized controlled trials to make sure the trial has the adequate statistical power.

CONCLUSION

Although the number of RCTs on treatment using cupping therapy is small in terms of any specific disease, and existing trials are of small size and low methodological quality, meta-analysis of a combination of cupping therapy with other treatments (such as acupuncture or medications) has nevertheless demonstrated significant benefit compared with other treatments alone in curing patients with herpes zoster, acne, facial paralysis, cervical spondylosis and prolapse of lumbar intervertebral disc. However, we evaluated almost all the included trials as having a high risk of bias, so consider it to be worthwhile (and, indeed, necessary) to conduct further high-quality RCTs of larger sample size in order to assess fully the effectiveness of cupping therapy for those common conditions that most benefited from cupping therapy according to this review's findings. In addition, we suggest that the study design and report should be standardized, and the study protocol registered with an authoritative organization[175,176] such as WHO International Clinical Trial Registration Platform (WHO ICTRP).

APPENDIX

TABLE 16-36 Mapping of Top 20 Diseases/Conditions by Study Type Between 1994 and 2011

Diseases/ Conditions	RCT	CCT	CS	CR	RCT	CCT	CS	CR	RCT	CCT	CS	CR	RCT	CCT	CS	CR	RCT	CCT	CS	CR	RCT	CCT	CS	CR	Sum
Herpes zoster	0	2	9	2	0	0	1	1	0	1	0	0	3	0	4	2	6	1	12	0	11	3	19	4	84
Pain conditions	0	0	9	4	1	1	4	3	1	1	0	1	2	0	4	4	3	1	9	4	5	0	4	1	62
Cough and asthma	0	0	9	7	1	0	10	1	0	0	2	0	0	0	2	0	1	1	3	1	4	0	3	4	50
Acne	0	0	4	0	0	0	2	0	0	0	1	0	0	0	4	0	6	1	5	1	4	0	6	3	37
Facial paralysis	0	0	1	0	0	0	3	0	0	0	0	0	2	0	1	2	1	0	0	1	14	2	2	0	29
Common cold	1	0	3	0	0	0	2	2	0	0	2	0	1	0	4	2	0	0	2	0	0	0	3	2	24
Cervical spondylosis	0	0	3	0	0	0	1	0	0	0	2	1	2	0	2	0	3	0	2	1	3	0	1	1	22
Lateral femoral cutaneous neuritis	0	0	2	1	0	0	5	2	0	0	0	0	0	0	3	1	1	0	1	0	0	0	1	1	19
Strain of lumbar muscles	0	0	3	0	0	0	3	1	0	0	1	1	0	0	0	0	0	0	1	0	5	0	2	1	18
Scapulohumeral periarthritis	0	1	3	1	0	0	5	1	0	0	0	0	0	0	0	2	0	0	1	0	2	0	1	0	18
Urticaria	0	0	3	0	0	0	3	1	0	0	0	1	0	0	0	0	0	0	1	0	1	0	2	1	13
Mastitis	0	1	4	0	0	0	2	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	11
Headache	0	0	1	3	0	0	1	1	0	0	0	0	0	0	1	1	0	0	0	2	0	0	0	1	11
Soft tissue injury	0	0	4	0	0	0	1	1	0	0	2	0	1	0	0	0	0	0	0	1	0	0	0	0	10
Arthritis	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3	2	0	1	0	1	2	0	0	10
Nero dermatitis	0	0	2	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1	8
Myofascitis	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	1	1	0	1	0	0	0	2	0	8
Wound and sious	0	0	0	0	2	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	7
Bi syndrome	0	0	2	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6
Sciatica	0	0	1	1	0	0	1	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	5
Summary	1	4	64	20	4	1	49	17	1	3	12	7	12	2	29	20	24	4	41	11	51	7	47	21	452
Year	1994-1996				1997-1999				2000-2002				2003-2005				2006-2008				2009-2011				

TABLE 16-37 Characteristics of 23 Included Trials on Cupping for Herpes Zoster

Trials	PATIENTS (M/F)		Average Age (yrs)	Diagnostic Criteria	INTERVENTIONS		Duration of Treatment	Outcome Measure
	Treatment	Control			Cupping Treatment	Control		
Ci 2010[18]	48/56	42/50	51.6	Criteria in text book in China	Prick with common needle on lesion then cupping on the same place for 10 min, once every 2 days	Aciclovir 0.5 g plus 250 mL normal saline intravenous drip twice daily	12 days	**Cure, markedly effective, ineffective
Cui & Chen 2011[20]	19/13	17/13	18–72	Criteria in text book in China	Prick with triangle-edged needle and cupping on lesion for 10 min, once every 2 days; plus aciclovir cream for external use and aciclovir 0.2 g five times daily	Aciclovir cream for external use and aciclovir 0.2 g five times daily	10 days	**Cure, markedly effective, effective, ineffective
Gao & Liu 2009[29]	19/11	17/10	45.6	Postherpetic neuralgia	Prick with triangle-edged needle and cupping on lesion for 10 minutes, once every two days, plus electroacupuncture 30 min, once daily	Carbamazepine 0.1 g three times daily, mecobalamine 500 μg twice daily, plus electroacupuncture 30 min, once daily	20 days	Pain relief
Guo 2006[32]	19/17	17/18	Unclear	Chinese criteria for diagnosis	Prick with triangle-edged needle and cupping on lesion for 10 minutes, once every 2 days, plus aciclovir 200 mg 3 times daily, vit B_1 100 mg, vit B_{12} 250 mg injection once daily	Aciclovir 200 mg 3 times daily, vit B_1 100 mg, vit B_{12} 250 mg injection once daily	10 days	*Cure, improve, ineffective Average time of cure
He 2011[35]	20/16	16/14	42.96	Criteria in text book in China	Prick with plum-blossom needle on lesion then cupping on the same place for 3–5 min, once daily, plus TDP 10 min once daily	TDP 10 min once daily	7 days	*Cure, improve, ineffective
Huang & Li 2008[39]	11/25	9/18	58.6	Criteria in text book in China	Prick with plum-blossom needle on lesion then cupping on the same place for 2–3 min, once daily, plus acupuncture 30 min once daily	Acupuncture 30 min once daily	10 days	*Cure, improve, ineffective
Ji & Guo 2009[45]	11/35	17/21	48.6	Unavailable	Prick with triangle-edged needle and cupping on lesion for 10 minutes once every 2 days	Aciclovir injection 5 mg/kg/d, once per 8 hours	14 days	**Cure, markedly effective, effective, ineffective Average time of cure Average dry-up time of lesion Average time of pain disappear Incidence rate of PHN

Continued

TABLE 16-37 Characteristics of 23 Included Trials on Cupping for Herpes Zoster (Continued)

Trials	PATIENTS (M/F)		Average Age (yrs)	Diagnostic Criteria	INTERVENTIONS		Duration of Treatment	Outcome Measure
	Treatment	Control			Cupping Treatment	Control		
Jin et al 2008[48]	26/19	25/20	55.5	Professional criteria in China	Prick with seven-star needle and cupping on the lesion for 10–15 min, once daily for first 3 days, then once every 2 days and last for 4 days	Aciclovir capsule 0.2 g five times daily, cimetidine 0.2 g three times daily, indomethacin tablet 50 mg three times daily, mecobalamin tablets 0.5 mg three times daily, washout with aciclovir and use aciclovir cream	10 days	*Cure, improve, ineffective Incidence rate of postherpetic neuralgia (PHN)
Liu & Li 2003[68]	28/22	19/15	55.1 54.2	Criteria in text book in China	Group 1: prick with plum-blossom needle on lesion then cupping on the same place for 10–15 min, once every 2 days, plus aciclovir 0.2 g five times daily, vit B_1 20 mg three times daily, vit B_{12} 500 mg injection once every 2 days, 2–3% aciclovir cream for external use	Aciclovir 0.2 g five times daily, vit B_1 20 mg three times daily, vit B_{12} 500 mg injection once every 2 days, 2–3% aciclovir cream for external use	10 days	**Cure, markedly effective, effective, ineffective Average time of cure Incidence rate of PHN
	16/14	19/15			Group 2: prick with plum-blossom needle on lesion then cupping on the same place for 10–15 min, once every 2 days	Aciclovir 0.2 g five times everyday, vit $_{B1}$ 20 mg three times everyday, vit B_{12} 500 mg injection once every 2 days, 2–3% acyclovir cream for external use		
Liu et al 2006b[70]	27/11	25/13	20–71	Criteria in text book in China	Prick with triangle-edged needle and cupping on lesion for 3 minutes, once daily, plus electroacupuncture 30 min, once daily, and herbal decoction 50 mL 3–5 times daily	Electroacupuncture 30 min, once daily, and herbal decoction 50 mL 3–5 times daily	7 days	**Cure, markedly effective, effective, ineffective Change of pain intensity
Liu & Chang 2004[71]	32	32	55.6	Unavailable	Prick with triangle-edged needle and cupping on lesion	Aciclovir 1.2 g five times every day, poly I-C injection 2 mg once every 2 days	10 days	**Cure, markedly effective, effective, ineffective
Long & Liu 2003[72]	34	30	44.5	Unavailable	Prick with plum needle on lesion then cupping on the same place plus ultraviolet radiation once every 2 days	Ultraviolet radiation once every 2 days	10 days	Times of treatment for *cured

Luan & Tang 2011[78]	30/20	23/27	20–82	Professional criteria in China	Prick with plum needle on lesion then cupping on the same place for 10–15 min, once every 2 days, plus acupuncture 30 min once daily, aciclovir injection 0.1–0.2 g twice daily, vit B_{12} 500 μg injection once daily	Acupuncture 30 min once daily, aciclovir injection 0.1–0.2 g twice daily, vit B_{12} 500 μg injection once daily, plus tramadol one tablet twice daily	Unclear	**Cure, markedly effective, effective, ineffective
Song & Zhang 2011[92]	50/30	40/30	27-70	Criteria in text book in China	Prick with triangle-edged needle and cupping on lesion for 10 minutes once daily	Aciclovir injection 5 mg/kg/d, once per 8 hours	7 days	**Cure, markedly effective, effective, ineffective
Sun et al 2011[95]	50	48	41.2	Criteria in text book in China	Prick with plum-blossom needle on lesion then cupping on the same place for 10–15 min, once every 2 days, plus aciclovir injection 5 mg/kg/d, once per 8 hours, and mecobalamin 0.5 mg three times daily	Aciclovir injection 5 mg/kg/d, once per 8 hours, and mecobalamin 0.5 mg three times daily	7 days	**Cure, markedly effective, effective, ineffective
Wang et al 2009[109]	55	54	Unclear	Criteria in text book in China	Prick with common needle on lesion then cupping on the same place for 5–10 min, once daily for first 3 days, then once every 2 days	Valaciclovir 0.3 g twice daily	9 days	*Cure, improve, ineffective Scores given by patients according to their symptom of disease Average dry up time of lesion; average time of pain disappear
Xiong SY et al 2007[119]	56	56	52	Professional criteria in China	Prick with plum needle on lesion then cupping on the same place 10–15 min, once daily, plus herbal decoction twice daily	Herbal decoction twice daily	Until pain disappear	Time of pain disappearance
Xiong ZL et al 2007[120]	20/28	16/24	49	Criteria in text book in China	Prick on lesion and cupping for 5 minutes	Aciclovir plus normal saline 250 mL intravenous drip once daily	7 days	Incidence rate of PHN
Xu & Yang 2004[121]	20/20	21/19	Unclear	Unavailable	Prick with triangle-edged needle and cupping on lesion for 15 min, aciclovir cream for external use plus aciclovir 0.5 g and glucose 250 mL intravenous drip twice daily	Aciclovir cream for external use plus aciclovir 0.5 g and glucose 250 mL intravenous drip twice daily	7 days	*Cure, improve, effective, ineffective Scores given by patients according to their symptom of disease Average dry up time of lesion; average time of pain disappear

Continued

TABLE 16-37 Characteristics of 23 Included Trials on Cupping for Herpes Zoster (Continued)

Trials	PATIENTS (M/F)		Average Age (yrs)	Diagnostic Criteria	INTERVENTIONS		Duration of Treatment	Outcome Measure
	Treatment	Control			Cupping Treatment	Control		
Zhang et al 2009[143]	10/15	12/13	Unclear	Professional criteria in China	Prick with plum-blossom needle and cupping on lesion for 5–10 minutes, plus electroacupuncture 30 min, once daily	Electroacupuncture 30 min once daily	10 days	*Cure, improve, effective, ineffective Pain relief Average time of pain lasting and starting relief
Zhang et al 2008[148]	14/26	12/28	Unclear	Criteria in text book in China	Aciclovir 200 mg five times daily, acupuncture beside the lesion 30 min once daily, plus prick with triangle-edged needle on Dazhui, Feishu (double), Ganshu (double) and cupping for 10 min once every 2 days, bloodletting on auditive apex twice every week	Aciclovir 200 mg five times daily, acupuncture beside the lesion 30 min once daily	14 days	*Cure, improve, effective, ineffective
Zou et al 2010[169]	14/26	13/27	43.9	Criteria in text book in China	Prick with plum-blossom needle and cupping on lesion for 5–10 minutes, plus electroacupuncture 30 min, once daily	Electroacupuncture 30 min once daily	10 days	*Cure, improve, effective, ineffective Average time of pain to disappear Average dry-up time of lesion

Definitions of cure', 'markedly effective', 'effective', and 'ineffective':
**Cure:* rash totally faded, the clinical symptoms are disappeared, no accompanying pain; *markedly effective:* rash faded more than 70% (including 70%), the accompanying pain was almost disappeared; *improved:* rash faded 30–69%, the accompanying pain was obviously alleviated; *ineffective:* rash faded less than 30%, no alleviation of the accompanying pain.
***Cure:* rash totally fade, no accompanying pain; *markedly effective:* rash faded more than 50%, the accompanying pain was almost disappeared; *effective:* rash faded 10–50%, the accompanying pain was alleviated a little; *ineffective:* rash faded less than 10%, no alleviation of the accompanying pain.

TABLE 16-38 Characteristics of 18 Included Trials on Cupping for Facial Paralysis (Bell Palsy)

Trials	PATIENTS (M/F)		Average Age (yrs)	Diagnostic Criteria	INTERVENTIONS		Duration of Treatment	Outcome Measure
	Treatment	Control			Cupping Treatment	Control		
Fu & Bai 2004[25]	80	40	Unclear	Unclear	Flash cupping on relevant points and retained for 10 min plus acupuncture for 30 min, once daily	Acupuncture for 30 min once daily	30 days	Cure, markedly improved, effective, ineffective
Gao 2010[28]	26/24	22/20	39.42	Criteria in text book in China	Prick with triangle-edged needles and cupping on relevant acupoints for 10 min, once every 2 days, plus acupuncture for 30 min once daily, and mecobalamine intramuscular injection once every 2 days	Acupuncture for 30 min once daily, and mecobalamine intramuscular injection once every 2 days	20 days	Cure, markedly improved, effective, ineffective
Huang et al 2009[41]	71/49	73/47	40.73	Criteria in text book in China	Flash cupping on relevant points for 5 min plus acupuncture for 30 min, once daily	Acupuncture for 30 min once daily	30 days	Cure, markedly improved, effective, ineffective
Huang et al 2010[42]	27/31	30/28	Unclear	Criteria in text book in China	Prick with common needles and cupping on relevant acupoints until 3–5 mL bleeding for 5 days, plus acupuncture for 30 min once daily	Acupuncture 30 min once daily	30 days	Cure, markedly improved, effective, ineffective
Liu 2009[65]	80	80	40.2	Criteria in text book in China	Flash cupping on relevant points for 5 min plus acupuncture for 30 min, once daily	Acupuncture for 30 min once daily	20 days	Cure, markedly improved, effective, ineffective
Li 2005[57]	24/8	22/10	42.3	Criteria in text book in China	Prick with plum-blossom needle and cupping on relevant points for 5 min, once daily, plus TDP for 20 min and antivirus drug, neurotrophic medicine once daily	TDP for 20 min and antivirus drug, neurotrophic medicine once daily	20 days	Cure, markedly improved, effective, ineffective
Liu & Zhang 2011[66]	19/9	16/12	25–72	Chinese criteria for diagnosis	Prick with common needles and cupping on relevant acupoints 5 min once every 2 days, plus acupuncture for 30 min once daily	Acupuncture for 30 min once daily	20 days	Cure, markedly improved, effective, ineffective
Luo & Lou 2011[80]	18/16	20/14	12–74	Criteria in text book in China	Flash cupping on relevant points plus acupuncture for 30 min, once daily	Acupuncture for 30 min once daily	20 days	Cure, markedly improved, effective, ineffective
Lü 2010[82]	14/11	15/10	46.8	Unclear	Prick with plum-blossom needles and cupping on relevant acupoints once every two days, plus electroacupuncture for 30 min once daily	Electroacupuncture for 30 min once daily	40 days	Cure, effective, ineffective

Continued

TABLE 16-38 Characteristics of 18 Included Trials on Cupping for Facial Paralysis (Bell Palsy) (Continued)

Trials	PATIENTS (M/F)		Average Age (yrs)	Diagnostic Criteria	INTERVENTIONS		Duration of Treatment	Outcome Measure
	Treatment	Control			Cupping Treatment	Control		
Ou & Xu 2009[87]	60	48	48.6	Criteria in text book in China	Flash cupping on relevant points plus herbal decoction twice daily and acupuncture for 30 min, once daily	Plus herbal decoction twice daily and acupuncture for 30 min, once daily	30 days	Cure, effective, ineffective
Qiu et al 2003[88]	40	40	Unclear	Unclear	Medicinal cupping (mixture of ginger, mustard, and dimethyl sulfoxide) on relevant acupoints for 30 min, once daily, plus neurotrophic medicine once daily	Neurotrophic medicine once daily	30 days	Cure, markedly improved, effective, ineffective; average time of cured
Ren 2006[89]	26/24	25/24	Unclear	Chinese criteria for diagnosis	Prick with plum needles and cupping on Yifeng acupoints for 10 min once daily, plus acupuncture for 30 min once daily	Acupuncture for 30 min once daily	30 days	Cure, effective, ineffective
Sun & Li 2010[93]	28/12	25/11	44.6	Unclear	Prick with plum-blossom needles and cupping on Yifeng acupoints for 10 min once every 2 days, plus acupuncture for 30 min once daily	Acupuncture for 30 min once daily	15 days	Cure, markedly improved, effective, ineffective
Wang HY 2010[171]	23/15	26/12	1.5-78	Criteria in text book in China	Prick with plum-blossom needles and cupping on relevant acupoints for 7–8 min, plus acupuncture for 30 min once daily	Acupuncture for 30 min once daily	45 days	Cure, markedly improved, effective, ineffective
Wang L 2010[103]	32/28	34/26	unclear	Chinese criteria for diagnosis	Prick with plum needles and cupping on relevant acupoints until 3–5 mL bleeding once every 2 days, plus acupuncture for 30 min once daily	Acupuncture for 30 min once daily	30 days	Cure, markedly improved, effective, ineffective
Zhao et al 2010[155]	27/16	25/17	unclear	Symptoms	Flash cupping on relevant points for 5 min plus acupuncture for 30 min, once daily	Acupuncture for 30 min once daily	30 days	Cure, markedly improved, effective, ineffective
Zhu et al 2009[163]	20/14	18/16	33.1	Unclear	Prick with plum-blossom needle and flash cupping on relevant points for 3 min, once daily, after 7 days plus acupuncture once daily	Antiviral drug, neurotrophic medicine once daily, after 7 days plus acupuncture once daily	30 days	Cure, markedly improved, effective, ineffective

TABLE 16-39 Characteristics of 8 Included Trials on Cupping for Cervical Spondylosis

Trials	PATIENTS (M/F)		Average Age (y)	Diagnostic Criteria	INTERVENTIONS		Duration of Treatment	Outcome Measure
	Treatment	Control			Cupping Treatment	Control		
Chen et al 2011[15]	22/14	23/13	38.6	Criteria in text book in China	Prick with plum-blossom needle on Jiaji, Jianyu, and Jianwaishu points then cupping on the same place for 10–15 min, once every 2 days, plus electroacupuncture 30 min, tuina 10 min once daily, and medicinal injection twice daily	Electroacupuncture 30 min, tuina 10 min once daily, and medicinal injection twice daily	20 days	*Cure, markedly effective, ineffective; pain intensity (VAS); average treatment duration
Shao & Liu 2003[91]	40/53	41/48	47.5	Chinese criteria for diagnosis	Prick with seven-star needle and cupping on Dazhui points for 8–10 minutes, plus acupuncture on Jiaji points for 20 minutes, twice weekly	Acupuncture on Jiaji points for 20 minutes, twice weekly	35 days	*Cure, markedly effective, ineffective
Wan 2007[101]	19/11	18/12	29.9	Chinese criteria for diagnosis	After needling the points (Fengchi, Ex-B2 and *Ashi*),each needle hole was applied immediate cupping therapy with appropriate vacuum glass jar and last for 3–5 min, needles remained for 10 min, once daily	Acupuncture on Fengchi, Ex-B2 and *Ashi* points for 10 minutes, once daily	30 days	*Recovery, improvement, failure; treatment course; relapse rate
Wang 2010[105]	42	42	45.7	Criteria in text book in China	Prick with plum needle on Dazhui, Jiaji, Jianjing, Tianzong, and *Ashi* points then cupping on the same place for 10–15 min, once daily, plus acupuncture abdominal acupoints for 30 minutes once daily	Acupuncture abdominal acupoints for 30 minutes once daily	30 days	*Cure, markedly effective, effective, ineffective

Continued

TABLE 16-39 Characteristics of 8 Included Trials on Cupping for Cervical Spondylosis (Continued)

Trials	PATIENTS (M/F)		Average Age (y)	Diagnostic Criteria	INTERVENTIONS		Duration of Treatment	Outcome Measure
	Treatment	Control			Cupping Treatment	Control		
Wang 2004[108]	29/37	13/17	Unclear	Unclear	Electroacupuncture on Dazhui, Dazhu, Jiaji, et al. Prick with triangle-edged needle and cupping on same points for 10–15 minutes, once every 2 days	Electroacupuncture on Dazhui, Dazhu, Jiaji, et al once every 2 days	30 days	*Cure, markedly effective, effective, ineffective
You et al 2006a[134]	18/12 (1 drop-out)	17/13 (2 drop-out)	45.25	Local government criteria for diagnosis	Prick with plum-blossom needle and cupping on Hand-Sanjiao and Hand-Taiyang Meridian points for 5 minutes, plus 30 minutes traction once daily	30 minutes traction once daily	20 days	*Cure, markedly effective, ineffective
Zeng et al 2007[138]	40	40	47	Chinese criteria for diagnosis	Prick with triangle-edged needle and cupping on Dazhui and C6 level points for 8 minutes, then acupuncture and moxibustion at Fengchi, Bailao points once daily	Acupuncture and moxibustion at Fengchi, Bailao points once daily	20 days	** Markedly effective, ineffective; specific viscosity of blood; hemortheological parameters
	40	40			Prick with triangle-edged needle and cupping on Dazhui and C_6 level points for 8 minutes, once daily	Flunarizine 5 mg once daily		
Zhuang et al 2011[167]	41/39	42/38	47.95	Chinese criteria for diagnosis	Prick with plum-blossom needle and cupping on ashi points for 5 min, moving the cups along the Du Mai and Jiaji points, plus tuina once every 2 days	Tuina once every 2 days	20 days	*Cure, markedly effective, ineffective

Definition of 'cure', 'markedly effective', 'effective', and 'ineffective': *cure:* the clinical symptoms are disappeared, the cervical or limb functions restored to normal; *markedly effective:* the symptoms obviously alleviated and improvement of the cervical and limb function; *effe*ctive: the symptoms alleviated but the cervical or limb functions still could not restored to normal; ineffective: the symptoms and signs remain unchanged after the treatment.

TABLE 16-40 Characteristics of 7 Included Trials on Cupping for Acne

Trials	PATIENTS (M/F)		Average Age (y)	Diagnostic Criteria	INTERVENTIONS		Duration of Treatment	Outcome Measure
	Treatment	Control			Cupping Treatment	Control		
Hong & Wu 2011[36]	8/11	7/11	23.51	Criteria in text book in China	Prick with needles on Du-14, and 3 Back-Shu points then cupping on the same place for 10–15 min, twice per week Plus herbal medicinal mask 30 min twice per week	Herbal medicinal mask 30 min twice per week	35 days	*Cure, markedly effective, effect, ineffective
Huang et al 2010[40]	76	50	23	Chinese criteria for diagnosis	Prick with triangle-edged needle and cupping on 5 Back-Shu points for 5–10 min, twice weekly, plus herbal preparation 50 mL, three times daily, external facial cream	Herbal preparation 50 mL, three times daily plus external facial cream	Unclear	*Cure, markedly effective, ineffective
Liu et al 2009[65]	14/29	39	23.8	Chinese criteria for diagnosis	Flash cupping on lesion until face flush, plus acupuncture for 30 min, once daily at first 10 days, then once every 2 days for another 10 days	Acupuncture for 30 minutes, once daily at first 10 days, then once every two days for another 10 days	30 days	*Cure, markedly effective, ineffective Number of popular, and pustule
Wang & Wang 2007[106]	30	30	Unclear	Criteria in text book in China	Prick with plum-blossom needle on 5 Back-Shu points then cupping on the same place for 5–10 min, once every 3 days, plus moving cupping on back and acupuncture for 30 minutes once daily	Acupuncture 30 min once daily	30 days	*Cure, markedly effective, ineffective
Wu 2010[111]	30	28	Unclear	Unclear	Prick with triangle-edged needle and cupping on 2 Back-Shu points for 5–10 min, once every 5–7 days	Tanshinone 1 g, three times daily	30 days	*Cure, markedly effective, ineffective
Wu 2008[113]	9/21	7/23	25.5	Criteria in text book in China	Prick with triangle-edged needle and cupping on back ashi points to get 5–7 mL bleeding, once daily	Tetracycline 0.25 g four times daily, plus 0.2% ketoconazole external cream once daily	10 days	*Cure, markedly effective, ineffective
Zhang & Song 2008[147]	25/18	28/15	Unclear	Chinese criteria for diagnosis	Prick with triangle-edged needle and cupping on back ashi points for 10–15 minu, once every 2 days	Tetracycline 500 mg, three times daily, plus external cream twice daily	15 days	**Cure, markedly effective, ineffective

Definition of 'cure', 'markedly effective', 'effective', and 'ineffective': *cure:* lesion totally faded (or more than 95%), the clinical symptoms are disappeared, left mild pigmentation and scars; *markedly effective:* lesion faded more than *70% (**60%), the severity obviously alleviated; *effective:* lesion faded *30%–69% (**20%-59%), the severity of lesion was reduced; *ineffective:* lesion faded less than *30% (**20%), or even worse.

TABLE 16-41 Characteristics of 5 Included Trials on Cupping for Prolapse of Lumbar Intervertebral Disc

Trials	PATIENTS (M/F)		Average Age (y)	Diagnostic Criteria	INTERVENTIONS		Duration of Treatment	Outcome Measure
	Treatment	Control			Cupping Treatment	Control		
Lin 2005[62]	27/25	28/24	44.89 ± 11.72	Chinese criteria for diagnosis	Prick with plum-blossom needle and cupping on Du Maipoints, Jiaji and BL-40 for 10 min, plus 30 minutes electroacupuncture on ashi, Jiaji points once daily	30 min electroacupuncture on ashi, Jiaji points once daily	20 days	*Cure, effective, ineffective
Lu & Wang 2007[76]	32/21	33/30	38.95	Chinese criteria for diagnosis	Prick with plum-blossom needle and cupping on 2 points of BL-23, BL-25, Du-4, Du-3, GB-30, BL-36, BL-58 for 10 minutes, plus 30 minutes electroacupuncture on BL-23, Jiaji points once daily	30 min electroacupuncture on BL23, Jiaji points once daily	20 days	*Cure, markedly improve, effective, ineffective
Xiong 2010[118]	39/21	37/23	40.5	Chinese criteria for diagnosis	Prick with plum-blossom needle and cupping on BL-23, BL-28, BL-25, ashi, GB-34, BL-57, GB-30 and BL-40 for 5 min, once every 3 days, plus Bloven sustained-release tablet 1 tablet twice daily and Xiao Huo Luo Pill 1 pill twice daily	Bloven sustained release tablet 1 tablet twice daily and Xiao Huo Luo Pill 1 pill twice daily	21 days	*Cure, markedly improve, effective, ineffective
Yang 2011[130]	46/44	48/42	50.25	Chinese criteria for diagnosis	Prick with triangle-edges needle and cupping on BL-23, BL-25, Du-4, Du-3, GB-30, BL-36, BL-58 once daily, plus 30 min acupuncture on BL-23, Jiaji points, etc., tuina and moxibustion once daily	30 min acupuncture on BL-23, Jiaji points, etc., tuina and moxibustion once daily	10 days	*Cure, markedly improve, effective, ineffective
Zhu et al 2011[164]	37	37	22–79	Chinese criteria for diagnosis	Prick with plum-blossom needle and cupping on ashi, once every 2–3 days, plus 30 min acupuncture on BL-23, BL-25, GB-30 three times per week	30 min acupuncture on BL-23, BL-25, GB-30 three times per week	30 days	*Cure, markedly improve, effective, ineffective

Definition of 'cure', 'markedly effective', 'effective', and 'ineffective': *cure:* the clinical symptoms are disappeared, the cervical or limb functions restored to normal; *markedly effective:* the symptoms obviously alleviated and improvement of the lumbar function; *effective:* the symptoms alleviated but the lumbar functions still could not restored to normal; *ineffective:* the symptoms and signs remain unchanged after the treatment.

TABLE 16-42 Reporting of Five Quality Components in Randomized Clinical Trials on Cupping Therapy

Publication Year	No. of Randomized Controlled Trials	Adequate Sequence Generation (%)	Adequate Allocation Concealment (%)	Blinding Method Reported (%)	Incomplete Outcome Data (yes, %)	Selective Outcome Reporting (yes, %)	Comparability of Baseline (yes, %)	Sample Size Estimation (yes, %)	Inclusive Criteria (yes, %)	Exclusive Criteria (yes, %)	Diagnostic Standard (yes, %)
1992	2	0	0	0	0	0	0	0	0	0	0
1993	1	1(100%)	0	0	0	0	0	0	0	0	0
1994	1	0	0	0	0	0	0	0	0	0	0
1995	—	—	—	—	—	—	—	—	—	—	—
1996	—	—	—	—	—	—	—	—	—	—	—
1997	2	0	0	0	0	0	0	0	0	0	0
1998	1	0	0	0	0	0	0	0	0	0	0
1999	2	0	0	0	0	0	1 (50%)	0	0	0	1 (50%)
2000	1	0	0	0	0	0	1 (100%)	0	0	1 (100%)	1 (100%)
2001	—	—	—	—	—	—	—	—	—	—	—
2002	—	—	—	—	—	—	—	—	—	—	—
2003	7	0	0	0	0	0	2 (28.57%)	0	0	1 (14.29%)	4 (57.14%)
2004	9	0	0	0	0	0	5 (55.56%)	0	3 (33.33%)	2 (22.22%)	4 (44.44%)
2005	10	2 (20%)	0	1 (10%)	0	0	7 (70%)	0	6 (60%)	5 (50%)	8 (80%)
2006	18	5 (27.78%)	0	1 (5.56%)	1 (5.56%)	0	15 (83.33%)	1 (5.56%)	4 (22.22%)	4 (22.22%)	14 (77.78%)
2007	15	4 (26.67%)	0	0	2 (13.33%)	0	12 (80%)	0	3 (20%)	3 (20%)	11 (73.33%)
2008	12	6 (50%)	0	1 (8.33%)	1	0	11 (91.67%)	0	5 (41.67%)	5 (41.67%)	10 (83.33%)
2009	29	5 (17.24%)	3 (10.34%)	1 (3.45%)	1 (3.45%)	1 (3.45%)	25 (86.21%)	3 (10.34%)	12 (41.38%)	13 (44.83%)	23 (79.31%)
2010	31	3 (9.68%)	0	0	1 (3.23%)	2 (6.45%)	27 (87.10%)	0	9 (29.03%)	8 (25.81%)	27 (87.10%)
2011	22	9 (40.91%)	3 (13.64%)	0	1 (4.55%)	0	18 (81.82%)	2 (9.09%)	12 (54.55%)	10 (45.45%)	20 (90.91%)
Total	163	35 (21.47%)	6 (3.68%)	4 (2.45%)	7 (4.29%)	3 (1.84%)	124 (76.07%)	6 (3.68%)	54 (33.13%)	52(31.90%)	124 (76.07%)

TABLE 16-43 Characteristics of Randomized Controlled Trials outside Meta-analysis

Type of Intervention	Included Disease	No. of Trials	No. of Participants	Methodological Quality	Main Finding
Cupping versus no treatment	Branchialgia paraesthetica nocturna	1	10/10	Unclear risk of bias	Wet cupping therapy is better than no treatment in symptom improvement according to change of VAS scores
	Non-specific lower back pain	2	43/35	High risk of bias	Wet cupping therapy is significantly better than waiting list in pain relief
Cupping versus usual care	Wound and sinus	4	370/339	High risk of bias	Cupping therapy is significantly better than usual care in symptom improvement
	Non-specific lower back pain	3	110/108	Unclear risk of bias	Cupping therapy is significantly better than usual care in pain relief
	Cough and asthma	3	640/381	High risk of bias	Cupping therapy is significantly better than usual care on symptom improving
	Acute sprain lumbar muscle	3	108/106	High risk of bias	Cupping therapy is significantly better than usual care in pain relief
	Common cold	2	130/80	High risk of bias	Cupping therapy is significantly better than usual care on symptom improvement
	Chronic obstructive pneumonia	2	72/70	High risk of bias	Cupping therapy is significantly better than usual care in symptom improvement
	External humeral epicondylitis	1	60/60	Unclear risk of bias	No significant difference between cupping and usual care in symptom improvement
	Lateral femoral cutaneous neuritis	1	77/71	High risk of bias	Cupping therapy is significantly better than usual care in symptom improvement
	Cancer pain	1	30/30	High risk of bias	Cupping therapy is significantly better than usual care in pain relief
	Cerebral infarction	1	40/40	High risk of bias	Cupping therapy is significantly better than usual care in symptom improvement
	Insomnia	1	20/20	High risk of bias	Cupping therapy is significantly better than usual care on symptom improvement
	Obesity	1	42/33	High risk of bias	Cupping is superior to usual care in reducing waist circumference but has similar effective in reducing weight
	Carpal tunnel syndrome	1	26/26	Unclear risk of bias	Cupping therapy is significantly better than usual care in symptom improvement
	Venosmous snake bite	1	50/50	High risk of bias	Cupping therapy is significantly better than usual care in symptom improvement
	Nausea/vomiting	1	30/30	High risk of bias	Cupping therapy is significantly better than usual care in symptom improvement
	Osteoarthritis	1	90/45	High risk of bias	Cupping therapy is significantly better than usual care in symptom improvement
	Rheumatoid arthritis	1	80/80	High risk of bias	Cupping therapy is significantly better than usual care in relieving pain of knee

	Upper-back myofascitis	1	45/45	High risk of bias	Cupping therapy is significantly better than usual care in symptom improvement
	Oedema of the upper extremity after surgery	1	34/33	High risk of bias	Cupping therapy is significantly better than usual care on symptom improvement
	Chronic gastritis	1	56/56	High risk of bias	Cupping therapy is significantly better than usual care on symptom improvement
	Postoperative retention of urine	1	40/40	High risk of bias	Cupping therapy is significantly better than usual care in symptom improvement
	Pain in waist and lower extremities	1	46/41	High risk of bias	Cupping therapy is significantly better than usual care in pain relief
	Atherosclerosis	1	22/20	High risk of bias	Cupping therapy is significantly better than usual care on symptom improvement
	Inflammation of superior clunial nerves	1	80/75	High risk of bias	Cupping therapy is significantly better than usual care in symptom improvement
	Prolapsed lumbar intervertebral disc	1	60/60	High risk of bias	Cupping therapy is significantly better than usual care in symptom improvement
	Chronic neck pain	1	25/25	High risk of bias	Cupping therapy is significantly better than usual care in pain relief
Cupping versus medications	Flat wart	1	48/45	High risk of bias	Cupping therapy is significantly better than medications in symptom improvement
	Bronchial asthma	1	24/24	High risk of bias	Cupping therapy is significantly better than medications in symptom improvement, no difference is fund between two groups in lung function improvement
	Non-specific lower back pain	1	60/30	High risk of bias	Cupping therapy is significantly better than medications in pain relief
Combination of cupping and herbal medicine versus herbal medicine alone	Leucoderma	1	40/40	High risk of bias	Combination of cupping therapy and herbal medicine is significantly better than herbal medicine alone in symptom improvement
	Cough and asthma	1	30/28	High risk of bias	Combination of cupping therapy and herbal medicine is significantly better than herbal medicine alone in symptom improvement
	Perimenopausal syndrome	1	30/30	High risk of bias	Combination of cupping and herbal medicine is significantly better than herbal medicine alone in symptom improvement

Continued

TABLE 16-43 Characteristics of Randomized Controlled Trials outside Meta-analysis (Continued)

Type of Intervention	Included Disease	No. of Trials	No. of Participants	Methodological Quality	Main Finding
Combination of cupping and acupuncture versus acupuncture alone	Facial paralysis	2	82/70	High risk of bias	Combination of cupping and acupuncture is significantly better than acupuncture alone in symptom improvement
	Obesity	6	233/231	High risk of bias	Five of them showed cupping plus acupuncture had significant effect in reducing weight, another one showed no significant effect for combination treatment group compared with acupuncture alone
	Chloasma	3	148/110	High risk of bias	Combination of cupping and acupuncture is significantly better than acupuncture alone in symptom improvement
	Prolapsed lumbar intervertebral disc	1	30/30	High risk of bias	Combination of cupping and acupuncture is significantly better than acupuncture alone in symptom improvement
	Shoulder–hand syndrome	3	95/95	High risk of bias	Combination of cupping and acupuncture is significantly better than acupuncture alone in symptom improvement
	Scapulohumeral periarthritis	2	90/88	High risk of bias	Combination of cupping and acupuncture is significantly better than acupuncture alone in symptom improvement
	Insomnia	1	50/50	High risk of bias	Combination of cupping and acupuncture is significantly better than acupuncture alone in symptom improvement
	Facial spasm	1	25/23	High risk of bias	Combination of cupping and acupuncture is significantly better than acupuncture alone in symptom improvement
	Osteoarthritis	1	20/30	High risk of bias	Combination of cupping and acupuncture is significantly better than acupuncture alone on symptom improvement
	Acute ankle sprain	1	46/46	High risk of bias	Combination of cupping and acupuncture is significantly better than acupuncture alone in symptom improvement
	Functional dyspepsia	1	42/33	High risk of bias	Combination of cupping and acupuncture is significantly better than acupuncture alone in symptom improvement
	Chronic diarrhoea	1	30/30	High risk of bias	Combination of cupping and acupuncture is significantly better than acupuncture alone in symptom improvement
	Health under par	1	32/30	High risk of bias	Combination of cupping and acupuncture is significantly better than acupuncture alone in symptom improvement
	Diabetic peripheral neuropathy	1	33/32	High risk of bias	Combination of cupping and acupuncture is significantly better than acupuncture alone in symptom improvement
	Sciatica	1	48/38	High risk of bias	Combination of cupping and acupuncture is significantly better than acupuncture alone in symptom improvement
	Knee pain	1	34/38	High risk of bias	Combination of cupping therapy and acupuncture is significantly better than acupuncture alone in pain relief
	Nausea/vomiting	1	16/16	High risk of bias	Combination of cupping therapy and acupuncture is significantly better than acupuncture alone in symptom improvement
	Depression	2	68/68	High risk of bias	Combination of cupping and acupuncture is superior to acupuncture alone on improving the symptoms of depression according to the change of Hamilton Depression Scale

Combination of cupping and medications versus medications alone	Cough and asthma	4	183/171	High risk of bias	Combination of cupping and medication is significantly better than medication alone in symptom improvement
	Herpes zoster	1	22/19	High risk of bias	Combination of cupping and medication is significantly better than medication alone on symptom improvement
	Chronic obstructive pneumonia	2	76/76	High risk of bias	Combination of cupping and medication is significantly better than medication alone in symptom improvement
	Acute myelitis	1	24/15	High risk of bias	Combination of cupping and medication is significantly better than medication alone in symptom improvement
	Diabetes mellitus	1	35/35	High risk of bias	Combination of cupping and medication is significantly better than medication alone in symptom improvement
	Intracranial hypertension	1	40/40	High risk of bias	Combination of cupping and medication is significantly better than medication alone in symptom improvement
Combination of other TCM treatment versus other TCM treatment alone	Shoulder pain	1	23/23	High risk of bias	Combination of cupping and rehabilitation training is significantly better than rehabilitation training in pain relief
	Ulcerative colitis	1	15/15	High risk of bias	Combination of cupping and moxibustion is significantly better than moxibustion alone in symptom improvement
	Cervical spondylosis	1	30/30	High risk of bias	Combination of cupping and traction are significantly better than traction alone in symptom improvement
	Prolapsed lumbar intervertebral disc	2	61/60	High risk of bias	Combination of cupping and traction is significantly better than traction alone in symptom improvement
	Vertigo	1	50/47	High risk of bias	Combination of cupping and manual traction is significantly better than manual traction in symptom improvement

ENDNOTES

1. The SF-36® is a comprehensive short form questionnaire with only 36 questions that yields an 8-scale health profile as well as summary measures of health-related quality of life. As documented in more than 2000 publications, the SF-36® has proven useful in monitoring general and specific populations, comparing the burden of different diseases, differentiating the health benefits produced by different treatments, and in screening individual patients.

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17 FREQUENTLY ASKED QUESTIONS AND PRECAUTIONS AND CONTRAINDICATIONS

CHAPTER CONTENTS

FREQUENTLY ASKED QUESTIONS (FAQS)

Is it safe?
All cupping methods described in the book are safe to practice when performed by an experienced or trained practitioner.
Can I do cupping on myself?
Yes, self-cupping on the frontal aspect of the body is quite possible.
Does it hurt?
In most methods of cupping therapy a 'pulling' sensation is experienced rather than 'pain'. Only Moving cupping and Strong cupping may cause painful sensations in some people.
Do cupping marks always happen?
Following cupping treatment, some degree of marking on the skin is inevitable. However, these marks fade within a day or two and sometimes never occur.
How long do cupping marks last?
Cupping marks can last between 1 and 15 days, depending on the severity of the application.
Is there any bleeding from the cupping location?
If acupuncture has been performed in the same location before cupping treatment, a small amount of blood (a few drops) is normally sucked into the cup. Also of course, during the application of the Bleeding cupping method, a desired amount of blood is drawn into the cup. Otherwise no bleeding takes place during cupping treatment.
Does cupping cause skin lesion or any kind of damage to the skin?
Definitely not! A pinkish or reddening appearance of the skin surface is expected owing to increased blood circulation to the area.
What if I blister during the cupping?
Sometimes Strong cupping methods, if left on the skin for a long time, can cause a blister to appear. There is no need to panic if this happens. Using an acupuncture needle, burst the blister and drain the fluid out. Using sterilized gauze, cover the area and keep it dry for few days.
How many cups are used in one session?
Western practitioners use between 5 and 12 cups during one session. In the Far East, however, it is normal to see up to 60 cups being used during one session!
Can I cup over the eyes?
No, cupping over the eyes is contraindicated.
Can I cup on the face?
Yes, the Light cupping technique is normally used on the face.